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THE SELF-CONCEPT — WHY WE REJECT SOME IDEAS AND ACCEPT OTHERS*

S. I. HAYAKAWA, B.A., M.A., Ph.D.†

The Darwinism of the man in the street accepts as given the notion that self-preservation is the first law of life. However, the idea of self-preservation is a biological ideal which cannot, without extension or refinement or some sophistry, be extended to account for the complexities of human behavior. You are sufficiently familiar with churches to know the customary theological answer to Darwin—they point to any number of items of behavior that are self-sacrificing and noble, and say that self-preservation is *not* the only law of life, and that if you are a true Christian, there are spiritual elements in man which account for the fact that all human behavior is not necessarily self-preservative.

However, it is not necessary to point to saints and heroes and other exceptional people to show that self-preservation is not an adequate statement of human motivation. All of us do many things, which cannot be accounted for in terms of self-preservation. You might take, for example, working on cross-word puzzles. Let me give some other examples of behavior which have nothing to do with self-preservation. First, let's take working one's head off in order to acquire his tenth million dollars; or as another example, the office girl who goes without lunch in order to make payments on a fur coat. (Lunch has always seemed to me necessary to self-preservation.) As another instance, getting oneself killed in the 500-mile race on Memorial Day at Indianapolis, or going over Niagara Falls in a barrel, or climbing Mount Everest. Or, let me give an example of my own behavior. I spend from $50 to $75 a year on fishing equipment in order to catch about 79 cents worth of bluegills. These are all forms of human behavior but, obviously, the formulation of self-preservation doesn't quite account for what we do.

Once you grasp the fundamental semantic idea that man is a symbolic class of life—this is Korzybskis formulation—once you grasp that all human behavior is conditioned by, shaped by, mediated by symbols, then the idea of self-preservation as the first law of life can be modified quite simply to include human behavior, by a simple re-statement, as follows: The fundamental motive of human behavior is not self-preservation but the preservation of the symbolic self. If you symbolize yourself as a certain kind of captain of industry, then obviously, you *must* have that tenth, eleventh, twelfth or twentieth million dollars in order to prove this to yourself. If you symbolize yourself as a certain kind of woman of fashion, then, obviously, that fur coat is more necessary than lunch. If you symbolize yourself as a certain kind of daring sportsman, it becomes necessary to enter the Memorial Day races at Indianapolis.

Now, what we call the symbolic self is pretty much the same as what Carl Rogers calls the self-concept and what Andreas Angyal calls self-organization. So let me state the suggested modification of the Darwinian law of self-preservation: The basic purpose of all human activity is the protection, the maintenance, and the enhancement, *not of the self, but of the self-concept, or symbolic self.*

Next, let me give you a definition of the self-concept. "The self-concept or self-structure may be thought of as an organized configuration of perceptions of the self which are admissible to awareness' (Rogers). Human beings are hopelessly addicted to the processes of abstraction, symbolization, and of talking to themselves, not only about the universe around them,

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† Professor of Language Arts, San Francisco State College

but about themselves. Hence, human beings, in addition to abstracting from and symbolizing the data of their environment, abstract and symbolize about themselves. And each of us, therefore, posesses not only a self, but a concept of self.

In the "Autocrat at the Breakfast Table" by Oliver Wendell Holmes, Holmes says that in any encounter between two individuals, there are six persons present. First, there are John and William. Then there are John's idea of John and William's idea of William, which may be entirely different from John and William. And then, third, there are John's idea of William and William's idea of John, which amounts to six "persons" altogether. This is a perceptive idea. Notice that John, therefore, acts not in his own interests, but his interests as he sees them in terms of his self-concept, which may not be the same thing as his own interest. And William, too, acts in the interests of his self-concept, but possibly not of his actual self.

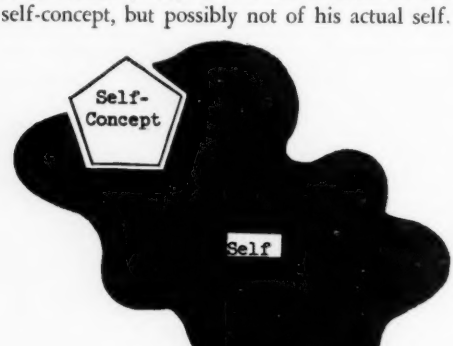

Fig. 1

This rather untidy free form indicates the totality of ourselves, biologically, psychologically, biochemically, intellectually, ideologically, and every other way. Now let us use general semantics terminology. We say that what we do with language is to make "maps" of "territories" of experience. If the free form in the diagram represents the "territory", we can represent the "map" by means of the pentagon, and that is the self-concept. Now notice that none of us knows all about oneself and, therefore, then pentagon is shown to cover a part of the self, but not all. Carl Rogers says the self-concept is an *organized* configuration of perceptions of the self. By representing the self-concept by a pentagon, a regular geometrical figure, I am trying to represent this fact of organization. What I mean by "organization" is the fact that we seem to *ourselves* to be self-consistent, even if we don't seem to make sense to anybody else. That is, the different parts of myself seem to me to fit, so that I *feel* I have some kind of organization, and you feel that you have some kind of organization, although friends and neighbors may shake their heads and say "he is so inconsistent", "he doesn't make sense to me at all". Well, maybe we don't make sense to them, but we do make sense to ourselves, and that is why I symbolize that fact by a geomertical figure. Notice too, that this fluid outside line indicates that this self that we are is constantly undergoing change in time, whereas the self-concept, which is geometrized, is relatively slower to change; and notice that all this area in the figure but outside the pentagon indicates the many, many facts about ourselves which we have not yet admitted to ourselves, that we don't know about ourselves. And here is a crucial point: Notice that one part of the pentagon goes outside the self altogether; this represents the elements in our self-concept which are *maps of territories which are not there.* Those are the elements in which you and I make mistaken statements about ourselves, in which we are kidding ourselves.

Now notice that the Korzybskian formulation of map and territory apply completely adequately to our diagram. Korzybski says that the map is not the territory, the map is not all of the territory. In a similar way, we can say the self-concept is not the self, the self-concept is not all of the self.

If we accept Roger's idea that the basic purpose of all human activity is the protection, the maintenance, and enhancement of the self-concept—notice the protection comes first—then we acknowledge the Darwinian idea of preservation and security are established and maintained, then all of us have a drive to enhance

our self-concept. That is, we want to be more of what we are. We want to realize more of our potentialities, and that is a basic drive.

In the work of people in Perceptual Psychology, like Hadley Cantril, F. P. Kilpartick, and others, you come across the idea quite frequently that the self-concept is the fundamental determinant of all of our behavior. Let me give you an illustration of this: Our environment is not a given, obvious fact. When ten of us walk down the same street, we actually see ten different environments, because each of the ten men have different sets of values, different ideas and different interests and, therefore, we do not actually inhabit the same environment. The self-concept, in a sense, creates the environment to which we react.

I will give a very elementary illusration of this. In a shop window, let us say, there are 75 hats, every one of them a potential stimulus. It is conceivable for a man or woman to walk by that shop window without even looking. But, let us say that one woman walks by—and, as she sees one of the hats she thinks "I must have that—That's for me" and she stops dead, and busy as she is, she has to dash in and get it before she can go on. Now, why is it that that one item in a complex environment almost comes out of that environment to hit her in the eye? The point I am making is that the self-concept determines perception, because, since the purpose of the organism is to constantly enhance the self-concept, if there is something in the environment that would be enhancing to that self-concept, your perceptual processes almost reach out in the environment for those things that enhance the self-concept. She is going in to buy that hat, which is going to look real good on her self-concept, although it may look like hell on her!

Here is another way of understanding what is meant by the self-concept. If we are Catholics, why don't we subscribe to Protestant magazines? If we are Protestants, why don't we subscribe to Catholic magazines? Why do we all tend to subscribe to magazines we agree with? Notice that from the point of view of information, this is a very silly thing that we do—subscribe to magazines that tell us what we already believe. But, from the point of view of self-concept, it makes perfect sense because the magazines that you don't agree with constantly imply that you are some kind of misguided fool, or possibly wicked, to believe that you do; whereas the magazines that agree with you keep saying to you, in one way or another, that you are right; you're an intelligent man; and then they give you even more reasons for thinking what you already have been thinking, and this strengthens and enhances the self-concept. Let us say that a family you have met has invited your family to dinner. Whether you accept or don't accept revolves around the self-concept. You say to yourself, "We are the kind of family that doesn't associate with that kind of family" and then you find reasons to decline. If, however, it enhances your self-concept to be seen at the home of these new acquaintances of yours, then of course, you accept. But, notice whether you accept or decline rests upon your perception of them and even more fundamentally upon your perception of your own social position and the kind of person you are.

As Hadley Cantril says, there is no *given* environment. The fact is that from the limitless occurrences that are constantly going on around us, we select and attach significance to only those which have some bearing upon our purpose. And, our basic purpose, as I said, is the maintenance of the self-concept.

I want to point out next how the self-concept becomes unrealistic. Let us say that as a child you develop—as children do—a terrible fear of dogs. Let us say that you have a father who says "anybody who is afraid of dogs is a sissy and no sissy is going to be a boy of mine". Now you are confronted with a dilemma. You either have to acknowledge your fear of dogs and thereby lose your father, because that is what father said, or else you have to either overcome or conceal this fear of dogs and keep your father. If this fear cannot be immediately overcome, as such fears cannot, you say to yourself until you believe it, "I am not afraid of dogs".—"See, Dad, I'm not afraid of dogs". That is how unrealistic elements in the map of

the self are built up.

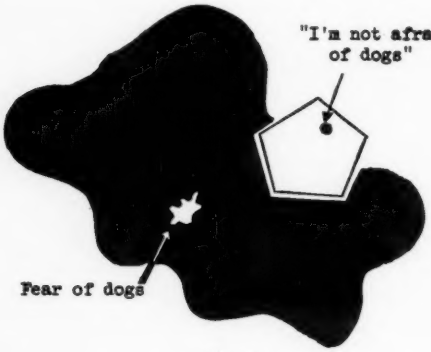

Fig. 2

We are constantly confronting threats to the self-concept which muster together our defensive mechanisms. Let's take the example of the little boy who has never been in swimming before and he confronts a pool. He is very young. He is frightened. Shall he go into the water? He is attracted by the idea because there are other boys in there already, splashing around and having a whale of a time. Nevertheless, the task of having to undertake a brand new experience can be highly threatening. You know what you do if you're a father in this situation. You offer to take his hand, you offer to carrying him in, you strengthen him so that he can confront this new situation, so as to reduce the threat and enable him to acquire this new experience. But you know what some fathers do about this. They throw the boy in, not taking into account the psychological situation whatsoever, saying, "There is nothing to be afraid of, boy, it is only 18 inches deep". That there is nothing to be afraid of *for the father* doesn't mean a thing psychologically *to the child* at the moment. Therefore, when the self-concept is under threat, the thing that needs to be done is to give it support. Give support of one type or another, so that the threat can be confronted. But supposing the threat is so great that the boy never does get up nerve enough to go into the water. Then mechanisms of rationalization go into effect: "I didn't want to go in anyway"; "Mother says there are germs in there", etc.

I want to call your attention to the fundamental fact about this very simple example. The conflict is presented by a new and therefore frightening experience which is, nevertheless, attractive and inviting. This conflict is essential to growth because, as Prescott Lecky and others say, unless you have conflict situations that challenge you, to bring out new things in you, you'll never grow. But also, Prescott Lecky says, unless you have conflict situations in which you are challenged by threats, you can never get neuroses either. But whenever there is conflict, there are two opposing alternatives, retreat into security, or advancement into growth and a learning process.

Supposing a salesman says—and he has had this self-concept for a long time—and supposing it is true, "I am the best salesman in this company". He is very happy about it. But things do not remain static. A new man was hired a few months ago and this man is turning in a better sales record. This is a threat to the self-concept from the external environment. Further example: here is a well brought up young lady reaching adolescence. She has been taught that a lady has no sexual feelings. In late adolescence she begins to feel them. The threats may be, as in the case of the salesman, from outside; or as in the case of the young lady, from inside or within herself.

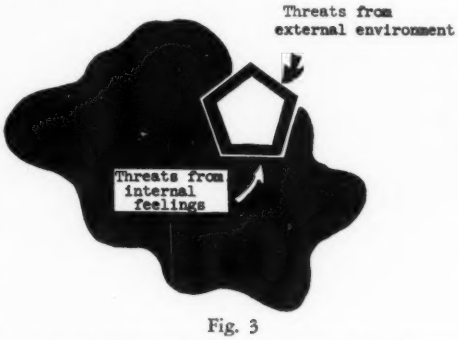

Fig. 3

Let us indicate by those arrows these threatening new facts. One of the things the individual can do, which I have indicated by

strengthening the lines of that pentagon, is to rigidify the present self-concept, protect it. "I am the best salesman in this company, no matter what the records show". "I am a lady, I don't feel any sexual impulses whatsoever". This is rigidity. Now, let's say this self-concept is fairly well rigidified so that the *self-concept* stays put for a while. The trouble is that the *self* won't stay put.

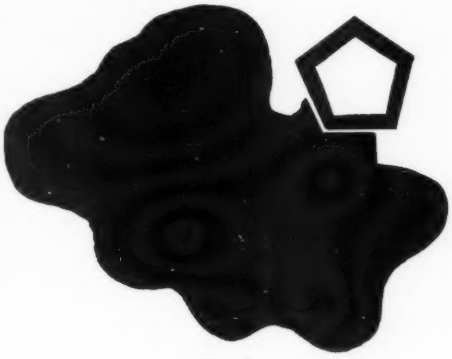

Fig. 4

The self slips away from the self-concept; the individual's ideas about himself become less and less real as time goes on. In other words, originally it may have been true that he was the best salesman in the company, but after a while, the facts of life change and he then is greatly deluded to think that he is a salesman at all any more.

I am reducing this process to a sort of paradigm, but I want to reinforce this point of the self-concept by telling you the story of Martha, whom I met at the Menninger Clinic where I studied for a while some years ago. Dr. Menninger asked me if I would like to meet one of his favorite patients, naming Martha, and I said, "Sure, whoever she is, I will be glad to meet her". Dr. Menninger took me to a ward in which there was a private room—really a locked bedroom—in which there was a bed, a mattress, a blanket, and absolutely no other furniture. And in it there was a woman of somewhere between, I should say, 30 and 80, but I couldn't tell. She was completely disorganized and she hadn't a stitch on. When we came in she quickly picked up the blanket and put it on her shoulders. Now the reason there was no other furniture in the room was that she was so violent and destructive you couldn't leave even a glass there; she would smash it up. If you left clean bed sheets, she would tear them up. Something very odd happened when Dr. Menninger went in. He introduced me as a younger man. He said, "Martha, I want you to meet our visitor from Chicago, Dr. Hayakawa". Martha pulled this blanket around her shoulder in what I thought was the most graceful and lovely of gestures, and started being flirtatious. The general theme of her conversation was that she was so glad I was in town; that the boys and girls were coming over for a party; did I hear that Joe and Marie had been engaged; that father and mother are going to be awfully glad to know that you are back in town, too; and won't you come over on Saturday evening; the Freemans will be there and the Larsons will be there; it will be just so nice to have you. And she said this—let me create this picture—she said this with such complete charm, as if she were 18 years old and a pretty and popular girl in town, used to having these gatherings of young people at her home. That is, she talked just like a young girl, except that that was no longer her condition. In other words, her *self-concept* had been frozen at that level of 18, whereas *she* had been changing for I don't know how many decades since then. Her picture of herself had no longer any relationship to the actuality of herself, and you could diagram this something like this (Figure 5). Here is her self-concept

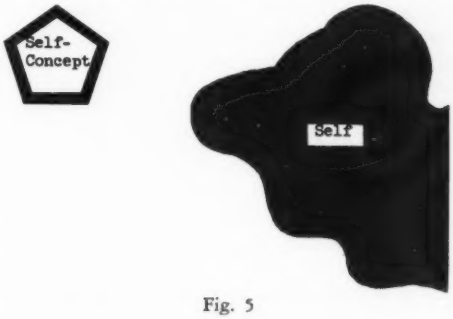

Fig. 5

and there is her self, way out there, bearing no relationship to it.

Conflict is essential to growth. Conflict that cannot be resolved, however, results in emotional disturbances that are more or less serious. And the longer the conflict remains unresolved, the more serious it becomes, which is another way of saying the more the self-concept departs away from the self. Maps have to fit the territory, as Korzbyski says, and if the map remains static while the territory keeps moving away, the disparity increases and there is a progressive decrease in capacity for prediction of one's own behavior and therefore, one's control. You remember how well that is stated in Korzybski, "that if you can predict, you can control". If you map the territory accurately, then you can predict and you can control, and this holds especially true of the relation of the self-concept of the self.

Let us now put another ending on the salesman story. Supposing the salesman, in the light of changing circumstances, says, "Now we have two good salesmen in the company". Note the automatic implication of this, "I am no longer a lone wolf, I am a member of a team". Once a person reorganizes his self-concept to that degree, he had to modify his behavior to match and therefore, he may very well discover capacities for teamwork in himself which formerly never had occasion to be realized. The woman with conflicting sexual feelings may say, "The hell with being a lady", or she may redefine herself by saying, "Of course I am still a lady, but they gave me a bum steer on the definition of a lady".

The learning process then—and this is important to us in education and it must be important to you in the professions—the learning process is essentially a means of resolving conflicts. One of our ideals is security for our children, security for our employees, security for our old age, etc. An ideal of security which is designed to shield people from *all* problems has the effect of shielding them from all further learning, because it is only out of problems—out of mistakes, in fact—that the learning process can arise. The successful assimilation of disturbing stimuli constitutes the only practical means by which a stable organization can be attained.

The next question I want to raise is "Where does the self-concept come from?" Well, first of all you will notice that I mentioned the human capacity for abstracting and symbolization. I would say that the self-concept begins in the cradle. There is a certain stage which all of us went through, in which we had to touch our toes in the crib, and then the rattles, find out which was part of our own bodies and which was something else. There, I imagine, is the beginning of the definition of self, where one starts to learn what is "me" and what is "not me". Then the behavior of the various members of the family towards you at subverbal levels before you are able to talk may form the basis of the self-concept. If you see that everybody loves you because everybody indicates this fact by the way they hold you, then your self-concept is that you are loved. You grow up feeling, "I am loved, somebody will always love me". Or alternatively, you may grow up feeling, "Nobody loves me". Many things are communicated to us subverbally by gesture, by touch, long before people talk to us. Later they talk to us and over the course of years they build up, consciously and unconsciously—but mostly unconsciously—through behavior and words, all sorts of ideas by means of which we structurize our self-concepts. The cultural role of boy, as opposed to girl, is sharply differentiated quite early. Very early you are told, "Now you mustn't do that, Marie, because you are a little girl and girls don't do that", whatever "that" may be. All sorts of cultural differentiations are established and these are internalized by the child. Often times, many things in the self-concept are acquired unrealistically through overhearing remarks. Some parents talk in the presence of their children as if the children weren't there. This has always bothered me from the point of view of etiquette, no less than from the point of view of psychology. Notice this kind of statement: "Fred is so musical, Jim is hopelessly shy, and isn't it a shame about Florence's hair". Here is

little Florence sitting on the floor developing inferiority feelings. And then, of course, there are many, many direct statements like "you don't study hard enough", "you are never clean", "you have terrible manners", "why aren't you smart like the Robinson children?" Or, the other kind of statement: "you are the most important thing in all the world", and these are ideas which are communicated verbally by one's parents and these help to create the self-concept.

Another element in the self-concept is from personal evaluations and this, I think, is most important. At a certain age you begin to make comparisons of yourself with your age mates. You say, "I can run faster than Ricky", "Michael is stronger than I am", "I am afraid of dogs, but I love cats", and, through one experience or another the child makes these personal evaluations of his self, on the basis of his own experience. This process goes on and on and on, for the rest of one's life. "I find I like bridge", or "I do not", "I find I like the theater" or "I find I do not", "I find it is fun to be a grocery store manager", "It would be horrible to be a grocery store manager", "I like going to the Museum of Modern Art", "I was so bored at the concert the other night". And then from all these experiences, you sort of accumulate a self-concept. "I am a natural-born leader", "I always like somebody else to take the first step", "I am sociable", "I am not sociable", and so on. These ideas accumulate. Insofar as these statements about the self are based upon valid experience, on behavior patterns that you have observed in yourself, then you have a healthy and realistic self-concept. But, I should say, as we grow older, one of the most important things should be the recognition of that unknown area outside of our self-concept which exists for all of us. I have a favorite joke—it is supposed to be a joke, but I think it has a serious point—about the man who was asked if he could play the violin and he answered, "I don't know, I have never tried". I think that is the right answer. If you have never had a musical education, is it not possible that there are musical potentialities within you that have never been realized? There is that vast area of the unknown in all of us and to know that there is that unknown is a very important thing.

I want to call your attention too to the role emotional identification plays in the self-concept. The earliest form is "I want to grow up and be like my daddy", "I want to be like my mother", etc. In other words, one of the functions of adults, as regards the next generation, is to provide the young with models, the cultural models which are the heroes and heroines on which another generation models itself. Very early in life children decide they want to model themselves after someone outside one's own family, as my little boy has decided that he wants to be Hopalong Cassidy. But this goes on for the rest of one's life, too. You are going to be Lana Turner or Douglas Fairbanks, Jr., or David Lloyd George, or T. S. Elliot, or Shelley, and so on. And notice that part of this process of growth is self-indentification in terms of the roles which one plans to adopt in life. Think of my little boy (or yours) who is going through his Hopalong Cassidy stage. I was not tempted to laugh because I remember that at 22 or so, I adopted a role that was sort of half Matthew Arnold and half Oscar Wilde. And I tried to talk like them and make their kind of remarks and have eccentricities of dress like them, just as my little boy is going through the Hopalong Cassidy stage. Whatever you admire, you internalize. I think this is a tremendously important point to remember in thinking about one of the public controversies going on right now; namely, what to do about the crime and horror comic books. One of the reasons that Frederic Wertham may have a point when he says that crime and horror comic books, are, in part, responsible for violent crimes on the part of juveniles, is that not only juvenile delinquents, but all of us model ourselves in dress and in behavior on the basis of our models. And there is the function of advertising to provide us models to try to live up to, models on which to shape ourselves. And this, too, adds to the creation of the self-concept. On

this point, I would like to repeat a remark that was made by Oscar Wilde. He said that "Life is an imitation of literature". I don't know if he was making a wisecrack or being deadly serious then, but I think that he can be taken very seriously. Literature, whether in the form of books, advertising, comic books, or movies, provides the models on which the next generation models its own ideas of behavior.

I want now to apply these notions to the basic problem of communication. If it is true that everybody is trying to protect and enhance his self-concept, then, what you are trying to communicate to anybody, either gets through or does not get through, not on the elegance of your presentation, not solely on the logic of your ideas, but most importantly, upon the meanings that your ideas may have in terms of your listener's self-concept. If what you have to say looks threatening to the other fellow's self-concept, it doesn't matter whether you are logical, whether your English is beautiful, whether your voice is golden, he is not interested anyway. Confronted with a resistant listener, the tendency of most of us is to try to improve our logic, improve our diction, we try to give more punch to our presentation, etc.

If, however, from the very beginning whatever we are trying to present is threatening to this fellow's self-concept, what he is doing is rigidifying his defenses against you; and the harder you talk and the more skillfully you talk and the more plausible you become, the more suspicious he becomes. This is fundamental, because a man or woman cannot be made to do something which violates his own self-concept or which he feels is threatening to his own self-concept. Lecky has the most wonderful little example of this. He said, "There is an educational truism that boys are slower and have less latent linguistic ability than girls". And Lecky says that is nonsense. "Take the case of the little boy, eight years old, who like to play cowboys, who tries not to cry when he gets a bump. This little boy is trying very hard to actualize his self-concept as manly. When he gets to school, he has to get up before his classmates and read statements like: 'The little black hen says cluck, cluck, cluck', or something equally inconsistent with his concept of manliness". And that is why boys don't learn to read as fast as girls. It is the content of readers which does not fit into the self-concept of boys. And Lecky proved his case by changing the readers to have content about railroads, airplanes, and so on, and then the boys were reading as fast as the girls were.

Let me give another example which bothers me. Here is a student who was deficient in spelling. He was a very intelligent kid, but his spelling was terrible. Finally it was figured out that this deficiency was not due to lack of ability, but rather to an active resistance which prevented him from learning how to spell, in spite of excellent instruction, the resistance arising from the fact that sometime in the past he defined himself as a poor speller. He has incorporated into him, "I am a poor speller". And—this is a statement that Lecky makes—"He misspells words for the same reason he refuses to be a thief". Spelling correctly is inconsistent with his self-concept. Being a thief is also inconsistent with his self-concept. You can try to force him to spell right, but you won't succeed, any more than you can force him to be a thief. Somehow or other a reorganization of the self-concept is called for.

Forgive me for giving so many educational examples, but I have two reasons for it. One is that they are my own background, but the other is that when you talk about children, they provide a simplified paradigm of so many of the problems of a communication at all levels.

Then there is such a thing as the group self-concept such as: "I am a Boy Scout", "I am a member of Rotary", "I am an American". These are all group self-concepts.

One of my pupils was fourth grade teacher, but when she tried to teach fractions to her fourth grade class, a sort of curtain fell between her and the class; a curtain of resistance. She could not teach them a thing about fractions. But by skillfully keeping a few after school to talk to them, she learned that this class had, as a basis of its togetherness, the self-

concept that they were the class to whom nobody could teach fractions! Their former teacher hadn't taught them and then there had been a substitute who hadn't taught them. They even sent in an experimental teacher—a real whiz in teaching mathematics from the State College—and she hadn't been able to teach them fractions, and the class was really proud of the fact that nobody could teach them fractions. But notice, this may be a wacky thing in their group-concept, but the fact that they are a group and have a self-concept means that they refuse fractions from socially extremely honorable motives.

We have tremendous resistance on the part of some employees, let us say, to a plan, to an idea; and the resistance strikes you as being just damn foolishness. It may not be. It may be foolishness from your point of view and my point of view that the children won't learn fractions. But at the level either of children or employees there may be certain basic loyalties within a group that may be violated by the things you ask. And it is not possible to proceed until you find out what they are. When this teacher—to continue this story—found out that that was their group self-concept, she knew how to handle it.

Now let me try to summarize. All God's children have self-concepts, and all God's children try to protect, maintain and enhance that self-concept within the environment as they see it, which is not the same as your environment. The other fellow has goals which make sense to him in terms of his environment as he sees it. And, since you don't necessarily see the same environment, it is only a coincidence if your goals agree. If you try to force or to superimpose your perceptions and goals on the other fellow, he feels threatened. He feels threatened and he increases his resistance. This is not an instance of cussedness on his part, this is an instance of a fundamental, biological mechanism he has, namely, the preservation and enhancement of the self-concept.

Here is a goldfish bowl with goldfish in it. The bowl is inadequate. There is not enough room for the goldfish. The water is stale. Here is a brand new aquarium you just brought home with fresh running water, air-conditioning and everything. For their own good you like to transfer these fish. But you know when you try to catch the darn things, they try to get away from you. They resist like mad because they see your hand with the net as threatening, although you intend it in order to help. So you have to forcibly get them and dump them into the new aquarium. When goldfish resist like this, we don't cuss them out for their stupidity because we accept as a fact about goldfish that you can't reason with them.

When human beings refuse to do something for their own good, we sometimes cuss them out for their stupidity, sometimes treat them as if they were goldfish, force something upon them and then get mad if they resist. But notice that we, ourselves, are stupid very often, because of a failure in our techniques of communication. If we find that they resist, what have we to do? We have to find out first of all, the *meaning* of what we have asked—the meaning not to ourselves, we know that already, but the meaning of what we said to the other fellow. What is the meaning from his frame of reference in his environment? And that meaning may be very threatening indeed to him, although you can see no reason for it to be threatening to him. And when you get insight into the meaning of an idea to the other fellow, you get to know what is the semantic barrier that stands between you.

Commonly, when the other fellow starts to resist your ideas, the very fact of his resistance is threatening to you, because it seems to be a criticism of your intelligence that he won't accept your ideas right away. So you begin to tense up and you redouble your efforts and therefore we find so often in communication the same situation you find on children's playgrounds and in international relationships—two parties screaming at each other, neither getting anywhere and neither understanding a word the other is saying, each of them intently pursuing his own purposes and banging away. Notice that the longer this goes on, the more likely that fighting begins in the playground or

that shooting begins between nations. Because when linguistic means of attaining agreement fail, the only alternative is non-linguistic means, which in the playground is fists and internationally is bombs and planes. The way to get out of this vicious circle of mutually mounting hostilities and threats and fears, is to suspend the pursuit of your own goals and listen to the other fellow—find out how the world looks to him.

The techniques of non-evaluative listening are among the things which all of us who deal with problems of personnel management ought to acquire; namely, how to listen to the other fellow without constantly passing judgments on what he says. How to listen in order to find out what he is saying rather than in order to find out what you can say next. If you succeed actually in doing this, this relaxes the boundary of his self-concept. That is, as he finds you less threatening, he reacts in such a way that you find him less threatening, too. And this interaction continues. In other words, what I am saying is that communication is a two-way process.

If you find you can't get a point across to someone, the thing to do is to shut up and listen to him, and, if you can get the one-way communication from him to you established, then a path is established for further communication. If you really listen to the other fellow, what should happen is this: He begins to think that you are not such a bad guy after all. Next, you begin to feel he is not so stupid as you had thought either, and this feeling begins to show in your face and gestures. And then that improves his orientation, too. Now, if you listen to him long enough, notice that the path has been established for communication and, therefore, maybe now you can get your point over to him, but also, maybe you may find that the point you wanted to make wasn't so practical anyway. You may have a different point to make, or another statement altogether.

This is the basis of communication then. The way to overcome or pierce the semantic barrier is not to redouble the efforts to pierce the barrier in the ordinary, aggressive manner, but to realize and actively participate in understanding what the other fellow is talking about. When the communication process is established from him to you, then the path from you to him can also be established.

The constant knowledge of that two-way nature of communication is, I think, essential to the improvement of human relations.

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LE CONCEPTO DE "IPSEITATE": PROQUE NOS REJICE CERTE IDEAS E ACCEPTA ALTERES

Dr. phil. S. I. Hayakawa (B.A., M.A.)

SUMMARIO IN INTERLINGUA

Le darwinismo del homine ordinari accepta como establite le notion que auto-conservation es le prime lege del vita. Nonobstante, le idea del auto-conservation es un ideal biologic que non pote—sin extensiones o raffinamento o sophistica—explicar le complexitates del comportamento human. Vos cognosce ben le costumari objection theologic contra Darwin: on signala un grande numero de occurrentias de actiones nobile e abnegante e conclude que le auto-conservation non es le sol lege del vita e que, pro le ver christiano, il ha elementos spiritual in le homine que explica le facto que non omne comportamento human es necessarimente auto-conservatori.

Lassa me presentar un definition del concepto de ipseitate: "Le concepto o le structura del ipseitate pote esser concipite como un organisate configuration de perceptiones del individuo ipse le quales es admissibile al conscientia." (Rogers). Le homines es incorrigibilemente inamorate

del processos de abstraction, symbolisation, e de parlar a se ipse, non solo con respecto al universo circum illes, sed etiam con respecto a se ipse. Consequentemente le humanos, a parte lor tendentia de abstraher e symbolisar le datos de lor ambiente, etiam tende a abstraher e symbolisar le datos de se ipse. Cata uno de nos, dunque, possede non solo un "ipse" sed etiam un concepto del "ipseitate."

Si vos trova que vos non pote communicar un certe puncto a un altere persona, fortia vos a ascoltar le, proque, si vos pote establir un communication unidirectional ab ille verso vos, un via es aperte que servira pro altere communicationes. Si vos vermente ascolta le altere persona, lo que occurre es isto: Ille comencia pensar que vos es, post toto, non un mal typo. Postea vos comencia pensar que ille non es si stupide como vos habeva opinate, e iste sentimento comencia manifestar se in vostre facie e gestos. E isto meliora etiam le orientation de ille. Ora, si vos le ascolta un sufficiente tempore, nota que un via de communication ha essite establite. Consequentemente, vos forsan pote communicar vostre puncto a ille, sed possibilemente vos trovara que le puncto que vos voleva establir non esseva multo practic, post toto. Forsan vos volera communicar un altere puncto, o un constatation completemente differente.

Isto, dunque, es le base del communication. Le methodo de superar o penetrar le barriera linguistic non es reduplicar le effortio a penetrar le barriera in le ordinari maniera aggressive, sed comprender, activemente participar in comprender lo que le altere individuo dice. Quando le processo de communication es establite ab ille a vos, alora le via ab vos a ille pote etiam esser establite.

Le constante conscientia de ille natura bidirectional del communication es, io pensa, essential al melioration del relationes human.

SAMUEL CHARLES MILLER MEMORIAL AWARD COMMITTEE REPORT

The American Academy of Dental Medicine will present the first Samuel Charles Miller Memorial Award medal to Dr. Hans Selye of the University of Montreal at the 14th Annual Meeting.

The gold medal will be presented in recognition of his significant contributions to the art and science of Dental Medicine.

Dr. Selye will give a report of his Department of Microbiology and Research of the University of Montreal on the "Induction of Cartilage and Bone Calcification by Mechanical Stress Applied Locally Through Implants of Glass or Plastic Objects."

The presentation will take place at the luncheon meeting on Sunday, May 29th, 1960.

J. LEWIS BLASS, *Chairman*

EVALUATION AND MANAGEMENT OF CARDIAC DISEASE COMPLICATING DENTAL THERAPY*

BERNARD TOLNICK, M.D.†

In the evaluation of a cardiac patient for dental therapy one must do more than study the indications and contra-indications for the oral procedure contemplated. One must determine the presence, the type and severity of the complicating cardiac disorder. Thus can one afford surgical relief to some who might otherwise be denied the benefit thereof, and also one can insure the presence of an improved patient at the completion of the treatment.

HISTORY

In making our cardiac evaluation the history is most important. It can be obtained in a brief interview giving a great deal of information—sometimes more rewarding than more elaborate and expensive procedures, such as electrocardiograms, venous pressures, etc. More important, it is an approach available to the dentist and the dental surgeon directly and should alert him to the need for further studies, consultations and therapy prior to his surgery or manipulation.

Thus, a history of a specific heart disease, such as:

Rheumatic Heart Disease
Hypertensive Heart Disease
Arteriosclerotic Heart Disease
Syphilitic Heart Disease
Congenital Heart Disease
Beriberi Heart Disease
Hyperthyroid Heart Disease

and others, is frequently readily available to the questioning doctor.

A history of rheumatic fever or chorea as a child, with a residual heart murmur, or the history of cyanosis as an infant, with heart murmur noted early in life, will take more intent questioning. With further inquiry symptoms of heart disease may be elicited. They are:

(1) The development of shortness of breath on exertion—the need to stop for breath on a flight of stairs;
(2) The presence of orthopnea, or a need to sleep with the head elevated on pillows;
(3) The development of palpitation of the heart, especially on minimal exertion;
(4) The development of ankle edema;
(5) The presence of cough, especially on exertion;
(6) The development of angina—or a substernal oppressive, constrictive, heavy, vice-like feeling in the chest, which radiates to the neck or to the left arm, or to both arms—on exertion or with emotional tension;

All these symptoms or some of them may lead one to suspect the presence of hitherto undiognosed heart disease.

The history must then clarify the degree of decompensation or the amount of exercise or exertion necessary to elicit the above symptoms. This determines the functional capacity of the heart and in turn demonstrates the capacity of the patient to tolerate surgical and other stress. Thus, if one can perform his usual duties—walk a flight of stairs without stopping to catch his breath or without developing pain, he is considered a good risk. In other words, he will usually tolerate surgery as well as one who is without his cardiac disease. As his symptoms of decompensation or coronary insufficiency become more severe or are brought about by lesser and lesser exertion or stress, so too his surgical risk becomes greater. Another consideration which determines risk is the predisposition of specific cardiac lesions to lead to certain complications. Since these complications may result

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in sudden death, let us list and discuss them. The complications are:

(1) Acute myocardial infarction
(2) Acute cardiac decompensation
(3) Acute thrombo-embolism
(4) Acute cardiac arrhythmias with tachycardia
(5) Subacute bacterial endocarditis

(1) Myocardial infarction

Myocardial infarction is an ischemic necrosis of heart muscle which may result from prolonged negative balance between the availability and demand of the heart muscle circulation. These two volumes vary from time to time and independently of one another and a negative balance usually is aggravated by constriction and exertion and relieved by dilation and rest. Thus, the patient with arteriosclerotic heart disease complicated by a recent infarction (one within a three months' period) has shown the final effect of this negative imbalance and is considered a poor risk because of his liability under stress of any type to have another infarction. So too, the arteriosclerotic who is having more frequent episodes or more severe episodes of angina might go on under stress of anesthesia, or even the small additional demand due to anxiety over forthcoming surgery, to complete his impending infarction. In these precariously balanced people any decreased coronary blood flow or decreased coronary arterial oxygenation, such as that resulting from a drop in blood pressure or anoxia, may be extremely dangerous.

(2) Acute cardiac decompensation

Acute cardiac decompensation or acute heart failure, which may manifest itself with acute pulmonary edema, cyanosis, dyspnea, cough, hemoptysis, anxiety, tachycardia and tachypnea (rapid respirations) may result in a patient whose functional reserve is exceeded by the demands placed on his general circulation. Thus, the degree of functional impairment demonstrated by history will alert the surgeon to the possibility of heart failure and acute pulmonary edema. This failure might result from the excessive load placed on the heart by rapid administration of parenteral fluids, especially those containing sodium. It may also result from pre-operative excitement or anesthesia-induced excitement, or the enforcement of the horizontal position in a person suffering from orthopnea.

(3) Acute thrombo-embolism

The development of acute thrombo-embolism, the development of solid particles in the blood stream, the formation of fibrin clots, sterile or septic, may occur in either the arterial or venous circuit. They manifest themselves in the former in the sudden development of an occlusion of any peripheral artery. When it affects the brachial or femoral arteries one may see either a sudden cold, painful, pulseless, pallid extremity or one may note a patient who complains of numbness and extreme pain in a limb associated with one or more of these signs. When other arteries are occluded one may see the picture of a cerebro-vascular accident or an organ infarction, depending on the specific artery affected. With a venous thrombo-emobolus one may see venous engorgement associated with tenderness and swelling of the area affected, or, lacking these signs, he may suddenly note the embolic manifestations of sudden chest pain, cough, with or without hemoptysis, collapse, shock, and in massive involvements, death. Thus, the patient with auricular fibrillation associated with mitral stenosis and a large dilated auricle potentially harbors thrombi in this non-contracting cardiac area. So too, the person with a recent myocardial infarction potentially harbors a mural thrombus overlying the ischemic endothelium. These people are particularly susceptible to the development of arterial emboli. On the other hand, the obese person with congestive failure, poor leg veins, and the resulting stagnation of venous blood is a potential candidate for pulmonary embolism.

(4) Acute cardiac arrhythmias with tachycardia

Patients with hyperthyroidism, with acute

toxic myocarditis, or myocarditis of infectious nature, are susceptible to the development of cardiac arrhythmias, which may manifest themselves as tachycardias. These, in turn, may by increasing cardiac work terminate in heart failure or infarction. In general, however, patients with arrhythmias, with auricular fibrillation, and premature auricular and ventricular beats have no increased risk over that which may result from their otherwise prevailing cardiac condition. They are handled as a rule with pre-operative medication. In the case of a person with complete atrioventricular heart block, who is having periods of Stoke-Adams Syncope, there is enhanced operative risk. Here the patient has a slow, steady, unvarying pulse rate while in complete block, who periodically faints or has lapses in consciousness when his ventricles cease their idioventricular rhythm and there is cardiac standstill as he shifts from complete to partial block. Another poor prognostic group are those persons with calcific aortic stenosis—they are susceptible to sudden death.

(5) Subacute bacterial endocarditis

Subacute bacterial endocarditis, while not as likely to lead to sudden death, is no less deadly a complication and must now be mentioned. It generally occurs in a patient who has some form of endothelial injury. It occurs in: Rheumatic heart disease, which affects the endothelium, as well as other layers of the heart; congenital heart disease, with its attending valvular and septal defects and patent ductus arteriosus; arteriosclerotic heart disease, with its calcific placques, which may protrude through the endothelial lining of the arteries; and syphilitic heart disease, with its aortic changes and its valvulitis. These people are liable to bacterial colony engraphment on their underlying lesions. Oral manipulation or surgery with the resulting bacteremia in these candidates may lead to the development of subacute bacterial endocarditis. We will later discuss the pathogenesis and prevention of this complication.

Despite these various potentialities, most cardiac patients tolerate operative manipulation very well. People with the above-mentioned conditions and their increased risks may present greater problems, but where justified by the surgical indications, can be treated successfully with special precautions and management. One must balance the indications for surgery with the risk. Thus, an elective operation of significant proportions should be postponed in a person who has had a myocardial infarction within the preceding three months. So too a person in congestive failure might well be delayed for surgery pending his cardiac therapy, for oral surgery can usually be postponed until full compensation has been reinstituted with Digitalis, bed rest, salt-free dietary regime, mercurial diuretics and, more recently, the addition of Diuril as a diuretic.

It may be well at this point to discuss other pre-operative considerations that might arise in cardiac patients. Recent advances in cardiac therapy and in the treatment of hypertension have made it imperative to consider the impact of these agents on the contemplated surgical procedures, as well as pre-operative and post-operative medication and anesthetics.

ANTICOAGULANTS

Anticoagulants are among the agents enjoying increasing usage of late. They are indicated in the treatment and prevention of thrombotic processes, such as:

(1) Auricular fibrillation with embolization
(2) Myocardial infarction with mural thrombus formation
(3) Thrombophlebitis with pulmonary embolization
(4) The syndrome of basilar artery thrombosis and insufficiency
(5) The syndrome of carotid artery thrombosis and insufficiency
(6) The aortic arch syndrome or pulseless disease

They seem indicated and are being used in the prevention of recurrent cerebral artery thromboses and impending coronary infarction. Such individuals, who are on long-term anticoagulation therapy, have to be managed pre-operatively in order to avoid hemorrhage on the one

hand or the impending infarction or embolization on the other hand.

Among the many anticoagulants used one, namely heparin, has been used in the acute phase of thrombotic processes. It is used in doses of 50 to 75 mgms. intravenously, giving a prompt effect and can be given in soluble form or as oily depot substances in doses of 100 to 200 mgms. both subcutaneously and deep intra-muscularly, if one wishes to avoid frequent injections. It prolongs clotting time and its effect can be determined by the Lee-White clotting-time determination. The treatment goal is to prolong the clotting time 2 to 2½ times the normal. Its effect, if necessary, can be blocked by the use of Protamine, 50 to 100 mgms, intravenously, but its effect can be noted to wane and disappear in 18 to 24 hours after omission of the dosage.

Other drugs which have been used for anticoagulation, which are used concomitantly with heparin, and which are commonly used for prolonged therapy, are the prothrombin-depressing drugs. These are Dicumarol, Tromexin, Danilone, Sintrom, Coumadin and Warfarin. These drugs, taken by mouth, are controlled by the use of daily prothrombin-time determinations. The treatment goal is to prolong the prothrombin time in seconds 2 to 2½ times that of the normal. The excessive levels of these drugs with potential attendant hemorrhage can be blocked by the use of Vitamin Kl (Mephyton), which is given orally in doses of 5 to 10 mgms. It can be given intravenously in doses of 25 to 50 mgms. for hemorrhage, but again, omission of the dosage for one to three days will usually result in a return to normal prothrombin levels. Usually this latter approach is followed and the need for neutralizing the anticoagulation therapy with Kl and the resulting difficulty in later reinstituting the anticoagulant levels can be averted. The latter difficulty can now also be averted by the use of Warfarin, an anticoagulant that can be quickly reinstituted after Mephyton therapy. The usual procedure prior to surgery is to omit the daily dose, performing daily prothrombin time determinations until the level rises above 60% of normal. The surgical procedure is then performed and therapy with anticoagulants is reinstituted on the third or fourth day post-operatively.

ANTI-HYPERTENSIVE DRUGS

In recent years many new anti-hypertensive drugs have been in use. They consist of Veratrum viridi, the rauwolfia drugs, such as Raudixin, Reserpine and others, the ganglionic blocking agents, such as Hexamethonium, Ecolid, Inversine and Ansolysin. These drugs are important in the present discussion in that their effect is potentiated by pre-operative and anesthetic medication and, if maintained at the same dosage, will cause an excessive blood pressure drop at the time of surgery. The ganglionic blocking agents should be decreased gradually prior to surgery, and omitted on the day of surgery, while the rauwoloid drugs may be skipped for several days before surgery in order to eliminate excess vagal effects, such as bradycardia and hypersalivation, as well as the aforementioned hypotension.

TRANQUILIZERS

In the present day, use of the various tranquilizers as an adjunct to the therapy of angina, cardiac arrhythmia, as well as anxiety states, complicates pre-operative management in that these drugs cause hypotension and potentiation of depressing effect of the usual pre-operative medications. They should be stopped prior to pre-medication or the dosage of the usual sedative drugs should be decreased in keeping with this known effect.

CORTICOSTEROIDS

In this present era, when we use corticosteroids with great success in the treatment of acute rheumatic states and collagen diseases, many of which manifest themselves with cardiac disease, we must remember that here again we must give due consideration to the effects of corticosteroids. First, corticosteroids lower resistance to infection. Secondly, they slow healing processes and decrease hyper-reactive states and, finally, they depress the adrenocortical function

of the recipient. In the light of this latter characteristic these drugs should never be withdrawn suddenly and under extreme stress may actually be required in increased dosage during the days prior to and during surgery, returning gradually to the previous dosage levels following the surgical procedure. Here again it must be remenbered in the light of the first characteristic that prophylactic, antibiotic therapy may be indicated.

SUBACUTE BACTERIAL ENDOCARDITIS AND ITS PROPHYLAXIS

Having made the necessary adjustment for previous therapeutic measures to which these cardiac patients have been exposed, it now behooves us to consider the problem of the prevention of subacute bacterial endocarditis, to which some of these people are particularly susceptible. First, the oral cavity is not a sterile field and dental therapy, including extraction of teeth, has been implicated since 1908 (by Lord Horder) in the pathogenesis of subacute bacterial endocarditis.

In 1935 Okell and Elliott[6] noted bacteremia in 60.9% of 138 patients following dental extractions. In patients with dental sepsis the incidence of bacteremia rose to 75%. Strangely enough, in 110 patients with periodontal infection, 10.9% had bacteremia prior to the extractions. In 1937 Burket and Burne[7] demonstrated that the bacteremia noted following extraction resulted from an influx into the vascular stream from the gingival sulcus by painting Serratia marcescens on the gums prior to extraction and culturing the blood thereafter. They isolated this same organism in blood culture in 17% of 204 cases. This was especially important since this organism rarely invades humans and is generally considered nonpathogenic. In 1941 Murray and Moosnick[8] found that 55% of their 336 cases with dental caries developed bacteremia after chewing on paraffin cubes for half an hour. Rocking teeth prior to extraction increased bacteremia as do multiple extractions, and it is noted that the freedom allowed by the use of general anesthesia is usually associated with increased bacteremia[9]. Finally, a correlation of the incidence of certain organisms in subacute bacterial endocarditis has been made with the incidence of those organisms in periodontal infections[9]. Impressed with the importance of dental surgery in the development of subacute bacterial endocarditis, it has been decided by both the American Heart Association, through its Council on Rheumatic Fever and Bacterial Endocarditis, as well as the Council on Dental Therapeutics, that prophylactic therapy should be given to all eligible cardiac patients[10].

Prophylaxis, it was decided, should be with Penicillin the drug of choice, since it is well tolerated, bacteriocidal and effective. The dosage should include oral Penicillin, 200,000 to 250,000 U., q.i.d., two days prior to surgery, the day of surgery and two days after surgery. On the day of operation, 600,000 U. of Aqueous Penicillin with 600,000 U. of Procaine Penicillin should be given intramuscularly shortly before surgery. A second choice decided upon includes oral Penicillin, 200,000 to 250,000 U. q.i.d., two days prior, the day of surgery and two days after surgery.

In those patients allergic to Penicillin, Erythromycin, 250 mgms., q.i.d., may be given two days before, the day of, and two days after surgery. Other broad spectrum antibiotics may be used, but since they are not usually bacteriocidal, they are less efficacious.

The American Dental Association, through its Council on Dental Therapeutics, suggests the following plan of prophylaxis:

One-half hour before operation the patient should receive 200,000 to 300,000 U. Crystalline Penicillin G, with 600,000 U. Procaine Penicillin G. An additional injection of 600,000 U. Procaine Penicillin should be given 18 to 20 hours later. If this is not feasible, they suggest continuation of 200,000 U. of oral Penicillin every four to six hours, for forty-eight hours post-operatively, using Penicillin V Oral. An alternative treatment suggested by the same group is the following: Twenty-four hours before operation the patient should begin to receive 200,000 to 300,000 U. of Penicillin V orally every four to six hours. 200,000

U. should be administered one hour before operation and it should be continued four times a day post-operatively for forty-eight hours.

PRE-OPERATIVE TREATMENT

Pre-operative treatment should include sedation with relief of apprehension, anxiety and fear, thereby decreasing cardiac demand and cardiac irritability. One may use Phenobarbital, 60 to 100 mgms. for pre-operative sedation, or Promethezine (Phenergan) may be used in doses of 50 to 75 mgms.[16]. Demerol, 50 to 100 mgms., or in more limited amounts, may be used to prevent apprehension and still avoid the adverse effect, previously discussed, of hypotension or anoxia. Atropine, .3 mgms. by hypodermic, is utilized to decrease secretions and to prevent arrhythmias by vago-vagal effect. In this dosage it will not usually cause any increase in cardiac rate through its vagal blocking effect.

OPERATIVE MANAGEMENT

During the surgical treatment consideration of the anesthetist and the surgeon for the increased importance of maintaining oxygenation and preventing hypotension is a must in these people. The decision of anesthesia should be left to the anesthetist and the surgeon, for the facility of the anesthetist and his proficiency with the agent chosen is more important than any particular anesthetic substance. Epinephrine in local anesthesia should be limited. Concentrations of 1:100,000 and volumes of less than 4 cc. are considered safe relative to the cardiac irritability that might be induced with this drug. We have already discussed the increased incidence of bacteremia with increased trauma of oral surgery.

POST-OPERATIVE MANAGEMENT

During the post-operative period these people usually do very well. They are at rest and, if maintained in a comfortable position, their cardiac demand is decreased. However, control of infection, careful maintenance of oxygenation, careful fluid and electrolyte control with precautions against overhydrating or overloading the circulation with sodium are necessary. The maintenance of Digitalis therapy, the use of coronary dilators, the use of diuretics and rest, plus the control of dietary sodium, will assure us of a successful outcome in our cardiac patient. Thus, his prognosis will not have been made worse, but will have been improvd by his dental therapeutic experience.

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BIBLIOGRAPHY

1. Butler, S., Feeney, N., & Levine, S. A.: The Patient with Heart Disease as a Surgical Risk, J.A.M.A. 95: 85-91, 1930.
2. Carr, M. W.: Heart Disease, Prophylactic and Therapeutic Management of the Patient in Dental Practice, J.A.D.A. 36: 253-261 (March) 1948.
3. Dinon, L. R. & Strang, J. E.: The Dental Patient with Heart Disease, D. Clin. N. Am. 335-350 (July) 1958.
4. Strean, L. P.: Subacute Bacterial Endocarditis in Relation to Dental Infection, Dental Items of Interest. 71: 1129-1132 (November) 1949.
5. Finland, M.: Current Status of Therapy in Bacterial Endocarditis, J.A.M.A. 166: 364-373 (January) 1958.
6. Okell, C. C. & Elliott, S. D.: Bacteremia and Oral Sepsis with Special Reference to Etiology of Subacute Endocarditis, Lancet 2: 869-872, 1935.
7. Burket, L. W. & Burn, C. G.: Bacteremia Following Dental Extractions, J. Dent. Research 16: 521-530, 1937.
8. Murray, M. & Moosnick, F.: Incidence of Bacteremia in Patients with Dental Disease, J. Lab. & Clin. Med. 26: 801-802, 1941.
9. Pressman, R. S.: Transient Bacteremias Associated with Dental Operative Procedures and their Prophylactic Treatment, D. Clin. N. Am. 351-370 (July) 1958.
10. Rammelkamp, C. H.—(Committee on Prevention of Rheumatic Fever and Bacterial Endocarditis, American Heart Association): Prevention of Rheumatic Fever and Bacterial Endocarditis through Control of Streptococcal Infections, Circ. 15: 154-158, 1957.
11. Nicholson, J. H.: Clinical Experiences with Anticoagulants, Angiology 8: 456-465 (October) 1957.
12. Shoshkes, M., Robins, B. & Yellin, G.: Orally Administered Phytonadione in Bishydroxycoumarin—Induced Hypoprothrombinemia, J.A.M.A. 165: 330-333 (September) 1957.
13. McDevitt, E., Wright, I. S. & Foley, W. T.: Present Status of Anticoagulant Treatment of Cerebral Vascular Lesions, Med. Clin. N. Am. 587-601 (May) 1958.
14. Friends, D. G.: The Tranquilizers, Med. Clin. N. Am. 1253-1268 (September) 1958.
15. Pelikan, E. W. & Kensler, C. J.: Sedatives: Their Pharmacology and Uses, Med. Clin. N. Am. 1217-1237 (September) 1958.
16. Adelman, M. H., Jacobson, E., Lief, P. A. & Miller, S. A.: Promethazine Hydrochloride in Surgery and Obstetrics, J.A.M.A. 169: 5 (January) 1959.
17. Jones, C. C.: Respiratory Emergencies and Methods of Resuscitation, Dental Items of Interest. 70: 1110-1112 (November) 1949.
18. Feldman, M. H.: Inhalation Anesthetics Safe for the Weakened Heart, Dental Items of Interest. 70: 857-869 (September) 1958.

EVALUTATION E CONDUCTA THERAPEUTIC DE MORBO CARDIAC COMO FACTOR COMPLICATORI IN LE THERAPIA DENTAL

per Dr. med. Bernard Tolnick

SUMMARIO IN INTERLINGUA

In le evalutation de un patiente cardiac ab le puncto de vista del therapia dental on debe facer plus que studiar indicationes e contra-indicationes del contemplate mesuras oral. On debe determinar le presentia, le typo, e le grado de severitate del complicante disordine cardiac. In iste maniera on pote provider un alleviamento chirurgic pro patientes qui alteremente deberea passar se de iste beneficio, e in plus on pote assecurar le presentia de un patiente meliorate al completion del tractamento.

In effectuar nostre evalutation cardiac, le historia del patiente es del prime importantia. Illo pote esser obtenite in un breve interview que produce un grande massa de information e es a vices plus profitabile que plus complexe e costose mesuras, como electrocardiogrammas, determinationes del pression venose, etc. Plus importante ancora, le interview es un methodo que es directemente disponibile al dentista e chirurgo dental e pote diriger su attention al necessitate de studios additional, de consultationes, e de therapia ante su intervention o manipulation dental.

EDUCATION COMMITTEE

One of the purposes of the Education Committee of the American Academy of Dental Medicine is to correlate manpower for the use of local sections in their scientific meetings. The committee is attempting to draw up a list of individuals, members of the Academy, who are willing to present lectures or clinics to the various sections. It is expected that these presentations would be made gratis in the interest of the general program of the American Academy of Dental Medicine as defined in our constitution, except that sections would be expected to repay travel costs to the essayists.

Anyone who wishes to participate in this program is invited to send his name and subject to the chairman. A form to be filled in will be found on page 59 in this issue of the Journal.

At a later date all sections will receive a complete list of speakers who are willing to participate in this program.

BERNARD B. SATUREN, *Chairman*

PRINCIPLES AND APPLICATION OF ENZYMATIC WOUND DEBRIDEMENT IN DENTISTRY

ANTHONY W. GARGIULO, D.D.S., M.S. and HARRY STAFFILENO, D.D.S.

The enzymatic debridement of wounds is a comparatively new adjunct to wound healing which is proving to be advantageous. This method of wound debridement has been of great value to the medical profession in the healing of many annoying chronic wounds due to trauma or following surgical procedures.[1, 2]

The utilization of enzymes as debriding agents was first employed by the medical profession. It has been used successfully in the treatment of tuberculous—fibrinopurulent empyema, ocular diseases, cellulitis, abscesses, thrombophlebitis, wound infections, burns, amputation stumps, gangrene, and osteomyelitis..[1, 2, 3]

In dental literature, Anderson[3] reported the use of trypsin to be a valuable therapeutic aid in the treatment of localized osteitis. Many of the aforementioned diseases are biologically similar to diseases we encounter in dentistry.[13] Thus, the enzymatic debridement of wounds can be of value in dental medicine, since many times necrotic and infected tissue in the oral cavity makes repair and healing a long and painful experience. Consequently, the investigation into this problem was undertaken. The areas of treatment by chemical debridement were septic sockets, surgical dressings, periodontal wounds, sinus and fistulous tracts.

PRINCIPLES OF USE

The proteolytic enzymes have the property of hydrolyzing the denatured protein and nucleo-protein resulting from dead or injured cells. The protein becomes denatured by an intramolecular, rearrangement due to some physical, chemical or mechanical action. Normally proteins are resistant to hydrolysis, but upon being denatured, protein becomes susceptable to hydrolysis by the enzymes. In the denaturation process the configuration of the peptide chains is rearranged. The interior of the molecular configuration is rearranged and emerges to form points of attachment for these enzymes, thus becoming active on the surface of the proteinaeous substrate.[4, 6] It is this same action which protects the native protein from autodigestion. Without a denaturation or rearrangement of the protein molecule, digestion cannot occur. It is this property which permits the removal of necrotic infected tissue from viable tissues.[4]

The enzymes which are successfully being used by most investigators are trypsin-chymotrypsin, a proteolytic substance; mixed pancreatic enzymes; and streptokinase-streptodornase,[5] a combination of enzyme activator and enzyme produced by certain strains of streptococci. Trypsin itself is an active enzyme. Streptokinase activates plasminogen in the exudate to plasmin (fibrinolysin) which dissolves the fibers in the wound. Streptodornase acts by lysing the sticky desoxyribonucleic acid which remains after the destruction of necrotic tissue and purulent cells.[7]

The enzymes used in our studies were a purified trypsin-chymotrysin formula.* This preparation provides physiologic wound cleansing with anti-infective action due to the additional content of antibiotics.
These preparations contained per gram:

TABLE I

POWDER	
Formula 1	
Trypsin	100,000 Au
Zinc Bacitracin	500 Au
Neomycin Palmitate	2.5 mg. bone

* From Departments of Periodontics and Research, Loyola University School of Dentistry, Chicago, Illinois.

* The material for this study was supplied by the Armour Laboratories.

OINTMENT

Formula 2

Trypsin	5,000 Au
Chymotrysin	5,000 Au
Polymyxin B Sulfate	5,000 u
Bacitracin	500 u

Crystalline trypsin is specific in action and cannot harm the living tissues. This unique action is possible because the living cells are protected by antienzymes.

The proteolytic enzymes are effective over a pH range of 5 to 8 with its greatest activity at pH 7. The final products of digestion are polypeptides and some amino acids.[8]

The debriding or cleansing action is accomplished by the two natural enzymes, which are derived from mammalian pancreas glands. These proteolytic enzymes are safe, non-toxic, and non-antigenic. They rapidly digest necrotic tissue, pyogenic membranes or crusts; living cells are not harmed. This action removes slough and debris, permits increased phagocytosis, and prepares wounds for maximum anti-infective action. Foul smelling wounds are rapidly deodorized in the process of debridement.[9, 10]

METHODS AND MATERIALS

In this investigation various methods of application were considered depending on the type of wound or lesion. In periodontal surgery the wound was one resulting from a gingival resection and healing was by secondary intention. The outer surface of the wound consisted of a necrotic layer with large numbers of bacteria, polymorphonuclear leukocytes, and fibrin.[11, 12] The rationale for using a proteolytic enzyme was to remove the denatured protein to allow healing to proceed more rapidly.

Initially, the commercially prepared enzyme ointment was incorporated in the periodontal surgical dressing of zinc oxide and eugenol. Economically, this was not desirable because great quantities of the material were necessary and only the enzyme in the dressing adjacent to the wound surface was really active in debriding the wound.

A second method, which proved advantageous, involved the use of an eighteen gauge needle attached to a 5 cc. Luer-Lok syringe. The point of the needle was blunted and a forty-five degree bend was made in the needle to facilitate its application in the mouth. The ointment was then put into the syringe and it could be ejected onto the wound surface with care and control of the quantity needed. After applying the ointment it was allowed to set approximately five minutes and then the periodontal dressing was applied over it. This method of application proved most satisfactory.

Controls were used by having one arch dressed with enzyme ointment and the opposing arch without enzyme. Also one patient would be dressed using the enzyme and the next patient would be dressed without using the enzyme ointment. Results were very definite in favor of the periodontal dressing with the enzyme ointment.

Using this assembly of the Luer-Lok syringe and the eighteen gauge needle, the enzyme ointment could be applied with care on any other lesion with a fibrinopurulent or necrotized surface, as is found in ulceromembraneous type lesions as apthous ulcer, burns, necrotizing ulcerative gingivitis and the like. However, it is important to note our study revealed that the best result was obtained in healing, when the lesion was isolated, dried gently, and the ointment applied and allowed to remain unaltered for a period of twelve minutes.

In order not to limit our vehicle to just an ointment base, in this investigation, a powder vehicle was used. It was a special preparation of dried enzyme in powder vehicle at a concentration of 10,000 Armour units per gram. It was contained in a polyethylene squeeze bottle with a fine pointlike spout. With this container, the enzyme could be sprayed in powder form on the lesion or wound surface. The indications for the powdered enzyme were the same as the ointment. The results using the powdered form of enzyme were just as favorable as the ointment, but the method of application was not

as desirable. Primarily, more powder was sprayed than really necessary and the possibility of patient inhalation existed.

In the treatment of localized osteitis following extraction of a tooth, we used the enzyme in ointment and powder form. Again the ointment form was more desirable, however, in a heavy ointment base. The socket was prepared by irrigation with warm saline solution. Then the socket was filled half way with the ointment. As a protective covering, a zinc oxide-eugenol preparation, such as that used in denture impressions, was placed over the socket in such a way to engage the tissue or teeth of the adjacent area. Some were done with just the zinc oxide eugenol preparation and the results were not as dramatic as when the enzyme was used. The enzyme dressing of one form or another was used on ninety-five patients without untoward reaction.

FINDINGS

The application of enzyme-antibiotic preparations on necrotic and infected wound surfaces was observed. A total of ninety-five patients were treated.

In fifty cases of gingivectomy the enzyme dressing was applied under the zinc-oxide eugenol surgical dressing. Normally the patients who had periodontal surgery required three redressings over a period of approximately twenty-one days. However, it was observed that with the use of the enzyme-antibiotic ointment, the wound surface was very well healed after just two redressings in a period of approximately fourteen days. Coordinate controls were used at the same time in the same mouth, and also with different patients. The amount of surface necrosis was almost entirely removed as well as a reduced amount of inflammation. The granular tissue proliferation, which many times is encountered, was almost totally absent. The wounds looked pink, with slight granulation tissue covering the surface. The untreated side showed a covering of necrotic debris and the granulation tissue appeared red. In general the healing time was reduced five to seven days. The clinical impression was that the different compounds of enzyme and antibiotics used appeared equally effective.

Patients who presented with an acute ulceronecrotizing gingivitis showed an initial dramatic result. In fifteen cases the lesions were sprayed with the powder and allowed to remain for twelve minutes. At the end of that period, the patient felt more comfortable and the wound surface appeared free of the necrotic membrane. From this point on it was a matter of routine therapy; however, by the elimination of this necrotic and infected surface there is a reduction in the toxic and irritable substances. The remainder of the cases treated were those involving soft tissue abscess, localized osteitis, and suppurating sinus tracts.

In patients with soft tissue abscess, the area was drained and injected with the ointment into the space that contained the exudate. Again it was observed that from the time of incising and draining to the time of complete healing, the interval was shorter when the infected wound surface was chemically debrided with the enzyme. Sinus tracts were treated with the ointment in conjunction with curettage and the results were very good.

Patients suffering from acute alveolar osteitis following extraction were treated. Within twenty-four hours the sockets appeared free of necrotic debris and granulation projecting from the bony surface. The healing proceeded uneventfully without the long painful period usually accompanying the post-operative dry socket.

DISCUSSION

From much of the previous medical literature, research and clinical investigations it was most rational that the use of proteolytic enzymes would be applicable in the treatment of oral diseases, particularly those lesions characterized by tissue debris, necrosis and a fibropurulent exudate. The sound biologic basis provided from past investigations warranted the use of these drugs in similar lesions and wounds in the oral cavity.

The effectiveness and benefits of enzyme therapy, in the area of the oral cavity, were

seen very early in our study. The most marked early observations were that of reduced necrotic tissue debris, fibrin clots, infected granulation tissue and an earlier resolution of the wound surface. If we were to observe the activity on the surface of some of the aforementioned lesions and wounds, we could justifiably assert the rationale for the use of proteolytic enzymes. The natural phagocytic function of polymorphonuclear leukocytes is enhanced by the enzymes digestion of denatured protein. It will also aid in the reduction of the inflammatory process by activating fewer polymorphonuclear leukocytes to the surface. The fibrin clot, which covers the surface while the epithelium "slides" over the wound, must also be removed to resolve inflammation. All these factors will reduce or minimize the inflammatory process in order to modify the over-all rate of healing.

Thus from these basic biologic principles we can well understand the effectiveness of enzymes in wound healing. From our own surgically produced periodontal wounds (gingivectomy) we could well understand why we were able to remove surgical dressing within 7-10 days, when normally they remain in place from 12-21 days.

Histologically it has been found that all ulcero-membraneous type lesions and wounds that heal by secondary intention have an outer necrotic layer with large numbers of bacteria, polymorphonuclear leukocytes, fibrin, desquamated epithelial cells, and other foreign protein debris.

From this biologic insite our study was undertaken using a surgical dressing in combination with an enzyme-antibiotic ointment to observe their effect on the healing time of these wounds and lesions. Our investigation has shown us that a lesion or surgical wound, barring any systemic abnormalities retarding normal healing, when treated with the enzyme-antibiotic preparation would heal in thirty percent less time. If antibacterials alone were used, the activity of healing was not as pronounced as with the addition of the proteolytic enzymes. It seemed that the activity of the antibacterials were inhibited by the tissue debris covering the wound.

Basically this drug is employed for chemical debridement of wounds, in contrast to physical debridement. Chemically, the tissue debris is hydrolyzed and the result is a clean wound.

The observations of less necrotic debris, granulation tissue, reduction in the surface area and early resolution of the lesion suggest local anti-inflammatory activity. One function of polymorphonuclear leukocytes is the phagocytosis of denatured protein and intra-cellular trypsin-like digestion. The large numbers of such cells on the surfaces of fibropurulent lesions would aid in the natural defense. Fibrin must be removed to resolve inflammation, for it may act as an irritant in itself with its accumulated debris, bacteria, dead cells and other substances that inhibit wound healing. Such fibrin may be phagocytized by polymorphonuclear leukocytes and histiocytes. In addition trypsin also digests fibrin.

The presence of anti-proteolytic enzymes in the exudate and the natural resistence of natural protein to enzymes serves to limit topically applied trypsin to surface activity. Resolution of the deeper inflammatory process is a function of tissue cells. The antibiotic activity of this preparation serves to inhibit the organisms, and to combat infection once the wound has been chemically debrided by enzymatic action.

The rate of healing in oral lesions is interdependent upon the production of irritants and of cellular exudate. The process of healing, although concurrent with inflammation, is independent of it. Enzyme-antibiotic preparations could serve to modify the rate of healing by removal of the irritants.

SUMMARY AND CONCLUSIONS

The usefulness of proteolytic enzyme preparations in the oral cavity was observed in ninety-five patients. The common factor involved in all of these patients was that they had oral lesions or wound surfaces that were externally necrotic, infected, and had a fibropurulent exudate.

Enzymes were found to have a marked effect upon the wound surface of many types of oral

lesions. The response of lesions such as necrotizing ulcerative gingivitis, aphthous ulcers, fistulous tracts, acute alveolar osteitis, hyperkeratosis, and surgical wounds was very dramatic.

An enzyme-antibiotic preparation used topically helped to chemically debride the wounds, resolve inflammation, and most important of all reduced healing time.

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BIBLIOGRAPHY

1. Jenkins, B. H. The Use of Intramuscular Chymotrypsin in Ocular Conditions. J. of Medical Assoc. of Georgia, October, 1956.
2. Reiser, H. G., L. C. Roettig, and G. Curtis. The Tryptic Debridement of Fibrino-purulent Empyema. American College of Surgeons "Surgical Forum," W. B. Saunders Co.
3. Anderson, M. F. A Report on the use of Crystalline Trypsin in Treatment of Alveolar Osteitis. Oral Surg., Oral Med., and Oral Path. 10: 1166, 1958.
4. Haurowitz, Felix. Isolation, Purification and Properties of Proteolytic Enzymes. Annals of New York Academy of Sciences, Vol. 68, Art. 1, p. 11, Aug., 1957.
5. Miller, J. M., J. A. Surmonte, M. Ginsberg, and F. B. Ablondi. 1955 Clinical Experience with the Injection of Streptokinase Intramuscularly in the Treatment of Infection and Edema. Maryland State J. Med., 4.J88.
6. Neurath, Hans. Multiple Specificity of Proteolytic Enzymes. Annals of New York Academy of Sciences, Vol. 68, Art. 1, p. 11, Aug. 30, 1957.
7. Tillet, W. The Principles Involved in Topical use of Streptokinase—Streptodornase. Annals of New York Academy of Sciences, Vol. 68, Art. 1, p. 151, Aug., 1959.
8. Kleiner, J. S. *Human Biochemistry*. 4th ed., C. V. Mosby Co., St. Louis, 1954, p. 206.
9. Dragstedt, C. A. Digestion of Living Tissues by Proteolytic Enzymes. Science, 98: 131, 1943.
10. Studke, K. Digestion of Slough by Pancreatic Ferment in Treating Severe Burns. Chirurg. 20: 588, 1949.
11. Menkin, V. *Newer Concepts of Inflammation*. Charles C. Thomas, Springfield, Ill., 1950.
12. Willis, R. A. *The Principles of Pathology*. Butterworth, London, Chapters 3, 4, 9, 1950.
13. Orban B. and F. M. Wentz. *Atlas of Clinical Pathology of Oral Mucous Membrane*. C. V. Mosby Co., St. Louis, 1955.

PRINCIPIOS E APPLICATION DE DEBRIDEMENT ENZYMATIC IN LE DENTISTERIA

per Dr. chir. dent. Anthony W. Gargiulo (M.S.) e Dr. chir. dent. Harry Staffileno

SUMMARIO IN INTERLINGUA

Debridement enzymatic de vulneres es un comparativemente recente adjuncto al tractamento curative de vulneres. Illo se ha provate avantagiose. Iste methodo de debridement de vulneres ha essite de grande valor al profession medical in le curation de multe enoiose vulneres de character chronic causate per trauma o resultante de manovras chirurgic.

Le utilisation de enzymas como agentes de debridement esseva introducite initialmente per le profession medical. Illo ha essite usate a bon successo in le tractamento de empyema tuberculo-fibrinopurulente, morbos ocular, cellulitis, abscessos, thrombophlebitis, infectiones de vulneres, ardituras, truncos de amputation, gangrena, e osteomyelitis.

Le utilitate de proteolytic preparatos de enzymas in le cavitate oral esseva observate in novanta-cinque patientes. Le factor commun in omne iste casos esseva que le patientes habeva lesiones o vulneres oral que esseva externemente necrotic, inficite, e productive de un exsudato fibropurulente.

Esseva constatate que enzymas habeva un marcate effecto super le superficies de multe typos de lesion oral. Responsas frappantemente dramatic esseva obtenite in casos de necrotisante gingivitis ulcerative, de ulceres aphthose, tractos fistular, acute osteitis alveolar, hyperceratosis, e vulneres chirurgic.

Applicationes topic de un preparato enzymatico-antibiotic esseva de adjuta in le debridement chimic de vulneres, in le resolution del inflammation, e—plus importante ancora—in effectuar un reduction del tempore de reconvalescentia.

CROSS-INFECTION AND THE DISPOSABLE DENTAL NEEDLE

EDWARD C. DOBBS, D.D.S.* AND FRANK A. DOLLE, PH.D., D.D.S.*

The implication of routine aspiration[1] in local anesthesia challenges the present concepts of needle sterilization. Ostrander[2] early in 1957 alerted the dental profession to the dangers of cross-infections from improperly sterilized syringes. The danger of spread of infectious and serum hepatitis by parenteral injections was discussed. The use of chemical disinfectants for sterilization of dental instruments was condemned as unreliable. He recommended autoclaving with steam under pressure or the use of dry heat at 320°F. If neither method is convenient, the use of boiling water for 15 minutes with the addition of an alkaline agent such as sodium carbonate is suggested.

Bacterial contamination of the dental needle following use was demonstrated by Streitfeld and Zinner.[3] When no antiseptic was applied to the mucous membrane prior to the injection of a local anesthetic, bacterial growth was obtained in all instances from the needle lumen. Less contamination was demonstrated when a topical antiseptic was applied prior to the needle insertion. They[4], also reported bacterial contamination in partially used local anesthetic ampules (cartridges). To substantiate involuntary aspiration through the needle and into the anesthetic cartridge, they simulated the injection procedure by forcibly ejecting the anesthetic solution into a dye-water solution, and demonstrated involuntary aspiration by having the colored water pass inwards through the needle and into the cartridge.

Apparently, sterilization of the dental needle has always been an uncertain procedure, complicated by its physical aspects and by contamination of the lumen by aspirated tissue proteins, skin plugs[5], paraffin from cartridge plungers, and salt deposits from the dried anesthetic solution and the antirust added to the sterilizing solutions. The outer side of the needle is readily cleansed by brushing with a detergent solution and can be sterilized by any reliable technique employed for such purposes. This is not true for the inner surface, the lumen. Here collected organic and inorganic debris cannot be satisfactorily removed and acts an an insulator preventing the ready destruction of the bacteria by the chemical agents or the induced heat.

The term "disinfectant" implies the destruction of non-sporulating bacteria only, while "sterilization" implies the destruction of all forms of living matter; the non-sporulating bacteria, the tubercle bacilli, the spores and the viruses. The fate of viruses has not been determined under routine sterilization procedures.

Therefore, chemical agents may be classed only as disinfectants and are not satisfactory for needle sterilization.[6] All of the more resistant forms of micro-life may be destroyed by heat in its many forms: flaming, autoclaving, dry heat, and boiling. Time is a factor depending on the heat resistance of the microorganisms and the degree of insulation to the applied heat. Until recently, the idea of transmitting viral infections by unsterile dental procedures had not warranted the attention of the practicing dentist.

The conclusive studies of Foley and Gutheim[7] strongly incriminated dental local anesthesia techniques in the transmission of serum hepatitis. Of the 50 cases of serum hepatitis reported at the Rochester General Hospital, 15 cases (30%) were associated with dental procedures requiring penetration of the oral mucous membranes. Of these 15 cases there were 3 fatalities.

Since their report was published many articles have appeared in dental journals warning of the dangers of serum hepatitis from unsterile dental procedures. As the virus which causes serum hepatitis cannot be grown in animals other than man, the efficacy of our present sterilizing procedures cannot be experimentally evaluated. In reviewing the literature on instrument sterilization one finds only two areas of agreement: (1) the present chemical sterilizing agents are inadequate and (2) autoclaving is the most

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satisfactory procedure for dental office practice. The time factor is not consistent in the reports. Bender[8] writes, "All surgical instruments should be autoclaved for one hour or more in known cases of hepatitis." He also suggests, "The safest procedure is to discard the needle after use if the patient gives a history of infectious hepatitis."

These recommendations, while apparently plausible, become confusing when one reads Hanger's[9] opening sentence: "Viral hepatitis varies in severity from a disturbance that is practically symptomless to a grave disorder marked by jaundice, prostration, and all the features of hepatic insufficiency." Therefore, the history or the present condition of the patient does not necessarily reflect the true incidence of the disease. To further complicate the diagnosis of hepatitis, Havens[10] classifies hepatitis as (1) epidemic hepatitis and (2) serum hepatitis and states that both types may be transmitted parenterally. He recommends that instruments used for parenteral penetration be sterilized by boiling in water for 30 minutes, or with steam under increased pressure (15 to 20 lbs.) for 20 minutes, or with dry heat for one hour.

Epstein and Kutscher,[11] recommended the following effective method for sterilizing needles, "first flush the lumen and then autoclave under 15 pounds of steam pressure for a minimum of 15 minutes."

Botwinick[12] in a review article suggests that the needles should first be cleansed and then autoclaved. As mentioned earlier, it is impossible to reliably cleanse the lumen of the needle and this factor may vary the effectiveness of the sterilization procedure. Crowley, Charbeneau and Aponte[13] in their investigation of instrument sterilization unequivocally state, "Sterilization, the killing of all forms of life found on instruments, can be accomplished effectively by steam under pressure, that is, autoclaving, at a temperature of 250°F. for ten minutes." The authors go on to say that autoclaving corrodes some types of instruments. It may, then be inferred that the delicate piercing ends of hypodermic needles are adversely affected, by this procedure resulting in dullness. Their advocacy of using "an oil-water emulsion" for precoating the instruments before autoclaving to prevent corrosion does not, apparently, apply to hypodermic needles.

A warning Editorial[14] published in the Journal of the American Medical Association states that the mere autoclaving of hypodermic needles at a specified pressure for a prescribed length of time does not insure sterility or prevent the incidence of cross-infection. An understanding of the mechanics of autoclaving and of the technical requirements involved in effective sterilization is also important. They recommend that a reliable person be made responsible for carrying out these procedures. Two of the more important details mentioned were: (1) to insure that the entrapped air in the chamber of the autoclave is displaced by steam and (2) that the instruments be so arranged in trays that all surfaces are exposed to steam under 20 pounds of pressure for a minimum of 30 minutes.

Recently, because of the threat of cross-infection by the hepatitis virus, Levin[15] developed a technic designed for the sterilization of cartridge needles and syringe hubs. The armamentarium necessary for the procedure is complicated and laborious for routine use in the dental office. After sterilization, he warns against immersion of the needles in a quaternary ammonium disinfectant solution as the solution may reside in the lumen and be injected into a patient causing untoward results.

Maurice,[16] in his "critical survey of instrument disinfection and sterilization," summerizes: "Specific information regarding the effect of boiling water, or for that matter, any method of disinfection or sterilization, in preventing viral hepatitis is lacking."

In view of the aforementioned opinions we must agree with Autian and Brewer[17] and with Tinker[18] that the use of a disposable hypodermic needle would certainly help reduce the possibility of cross-infection which does occur at the present time. According to these authors a disposable needle has been introduced for the glass type hypodermic syringe. Unfortunately, most dentists use the cartridge type syringe and are not benefited greatly by this innovation.

Disposable needles and even syringes are being more and more widely used by the medical profession, particularly in busy hospitals and clinics, where the expense of sterilizing and processing is as much as the price of disposable needles.

Recently a dental manufacturer[19] introduced to the profession a "Carpule"* type disposable needle. The needles are available in lengths of 1 and 1⅝ inches and in 25 and 27 gauges. The needles are protected by a plastic sheath, and are marketed in sealed cans which prevent contamination. The needle and sheath are sterilized with ethylene oxide vapor. The needle has a plastic hub which locks it into a specially designed syringe. The hub, being plastic, will not withstand boiling; thus the reuse of these needles is precluded. Plastic and the metal aspirating syringes are available for use with disposable needles. The plastic syringe may be autoclaved at 250°F. for sterilization; above that temperature may produce softening with distortion of the shape. With this disposable type needle the anesthetic solution does not come in contact with the plastic of the needle or syringe. When an injection of a local anesthetic is to be made, the assistant or the dentist removes the cap from the proximal end of the sterile needle, inserts the diaphragm end of the cartridge into the plastic hub, drops the cartridge and needle into the syringe, and, when ready to make the injection, removes the needle guard and injects.

After the completion of this paper, samples of another disposable needle were received through the mail. This product is described as the Monojet "400"** and is of 25 gauge and 13/16 (short) and 1 7/16 (long) inches in length. There is a plastic hub which supports the needle and is screwed on to a regular cartridge-type syringe in such a manner that the anesthetic solution does not come in contact with the plastic hub. In this type needle, there is one apparent feature which can break the chain of sterility, that is, the hub of the syringe must be sterile to prevent contamination of the end of the needle which is inserted into the cartridge.

The disposable needle with an anesthetic cartridge have several advantages: chief of which are (1) a properly prepared and sterile anesthetic solution, (2) a sharp needle and (3) a needle free from contamination. When the element of time is considered for cleansing the outside and inside of the needle, resharpening, sterilization, insuring sterility until used, etc., there may be a monetary advantage in the disposable type needle.

The introduction of sterile, disposable dental needles is another forward step in the realm of dental anesthesia.

618 W. Lombard St.
Baltimore 1, Md.

*Carpule is a trademark for the Cook-Waite Laboratories, Inc.
**Monojet "400" is a trademark for the Roehr Products Co., Inc.

BIBLIOGRAPHY

1. Harris, S. C., Editorial, J.A.D.A., 55:259, August 1957.
2. Ostrander, F. D., J. Michigan D. A., 39:131, April 1957.
3. Streitfeld, M. M. and Zinner, D. D., J.A.D.A., 57: 657, November 1958.
4. Zinner, D. D. and Streitfeld, M. M., J.A.D.A., 56: 508, April 1958.
5. Gibson, T. and Norris, W. Lancet, 2:983, November 8, 1958.
6. Spaulding, E. H., Military Medicine, 123:437, December 1958.
7. Foley, F. E. and Gutheim, R. N., Ann. of Int. Med., 45:369, September 1956.
8. Bender, I. B., J. Am. Dent. So. of Anes., 4:7, December 1957.
9. Hanger, F. M., J.A.M.A., 165:1696, November 30, 1957.
10. Havens, W. P., Jr., J.A.M.A., 165:1091, November 2, 1957.
11. Epstein, S. and Kutscher, A. H., Editorial, N. Y. State D. J., 23:436, November 1957.
12. Botwinick, Leo, N. Y. State D. J., 24:256, June-July 1958.
13. Crowley, M. C., Charbeneau, G. T., and Aponte. A. J., J.A.D.A., 58:45, January 1959.
14. Editorial. J.A.M.A. 170:1931, August 15, 1959.
15. Levin, H. L. Med. Technicians Bul. 10:29, Jan.-Feb., 1959.
16. Maurice, C. G., J.A.D.A., 55:527, October 1957.
17. Autian, J. and Brewer, J. H., Am. J. Hosp. Pharm., 15:303, April 1958.
18. Tinker, R. B., The Bulletin (Am. So. of Hosp. Pharm.), 13:319, July-August 1956.
19. Cook-Waite Laboratories, Inc. 1450 Broadway, New York 18, N. Y.

INFECTION CRUCIATE E LE AGULIA DENTAL A USO UNIC

per Dr. chir. dent. Edward C. Dobbs e Dr. phil. e chir. dent. Frank A. Dolle

SUMMARIO IN INTERLINGUA

Le uso routinari de aspiration[1] in anesthesia local require un revision de nostre conceptos del sterilisation de agulias. In le prime parte de 1957, Ostrader[2] dirigeva le attention del profession dental al periculo de infectiones cruciate per inadequatemente sterilisate syringas. Le periculo de transferer hepatitis infectiose e hepatitis seral per injectiones parenteral esseva discutite. Le uso de disinficientes chimic in le sterilisation de instrumentos dental esseva condemnate como incerte. Ostrader recommendava autoclavage con vapor sub pression o le uso de calor sic de 320 F. Si ni le un ni le altere de iste duo methodos es convenibile, le uso de aqua bulliente durante 15 minutas con le addition de un agente alcalin, per exemplo carbonato de natrium, es proponite.

Le agulia a uso unic que include un cartucha de agente anesthetic ha plure avantages. Le plus importante es (1) le ben preparate e ben sterilisate solution anesthetic, (2) le facto que le agulia es semper acute, e (3) le facto que le agulia es libere de omne contamination. Quando on prende in consideration le elemento del tempore que es requirite pro mundar le agulia interior- e exteriormente, pro re-acutiar lo, e pro le sterilisation e le assecuration que le sterilisation es mantenite usque le agulia es usate, il pare ben possibile que le agulia a uso unic es avantagiose etiam ab le puncto de vista de su costo.

Le introduction de sterile agulias dental a uso unic es de novo un passo in avante in le campo del anesthesia dental.

SECOND ANNUAL SAMUEL CHARLES MILLER MEMORIAL LECTURE

The Second Annual Samuel Charles Miller Memorial Lecture will be held in conjunction with the next New York Section Meeting on Tuesday evening, February 2, 1960 at 8 P.M. at the George Washington Hotel in New York City.

Dr. Lewis Fox of South Norwalk, Connecticut will be the guest speaker.

All friends, colleagues and interested dentists are cordially invited to attend.

CLINICAL ORAL THERAPEUTICS — 1958
SOME HIGHLIGHTS OF A REVIEW OF THE LITERATURE

AUSTIN H. KUTSCHER, D.D.S.

Both the dental and medical literature are replete with innumerable studies of diseases treated with various therapeutic agents. An attempt will be made in this paper to present a brief summary of a substantial number of these reports in order to give a composite picture of the trends and findings obtained from a perusal of the current literature. In the course of this condensation many additional articles were considered. The exclusion of articles from this review should not be construed as indicative of an absence of significance *or* quality; rather, the articles included herewith have been chosen because they represent a series of observations which are well-rounded and meaningful in their entirety. Other studies in certain areas might well have been substituted. General anesthetics as a group are not considered. Likewise, agents used to reduce caries are not included.

ANALGESICS

Several new and important analgesic agents have recently been introducd to dental practice including, in particular, Darvon, Zactirin, and Leritine.

Holte[1] has reviewed the doses, side effects, and actions of the newer opioid drugs and suggests that among the new non-narcotic analgesics, Zactirin (ethoheptazine), in a dose of 100 mg. in combination with aspirin may possess approximately the analgesic effectiveness of 30 mg. of codeine and appears to be relatively as effective as codeine in the control of dental pain. Darvon (dextropropoxyphene) is also suggested as equivalent to codeine milligram for milligram in the control of pain. Both Darvon and Zactirin may be administered by mouth and both have been shown to be essentially free of addiction liability. Both have "relatively few side effects and a wide margin of safety."

Leritine (anileridine) was utilized by Therien, Lee, Malashock, and Davis[2] in more than 600 patients, including over 2,500 administrations, as a premedication for general anesthesia in surgery and as a postoperative sedative and analgesic. Leritine is a substituted meperidine. Doses utilized were 50 mg. orally or subcutaneously as a premedicant and 25 to 75 mg. postoperatively. Except for the absence of euphoria, the effects of Leritine were similar to those following the administration of morphine and meperidine. Addiction was not seen, nor was there evidence of withdrawal symptoms even after repeated administration. Side effects —and these of minor consequence—were rare. Both the very young and old responded well to the drug under a wide variety of medical and surgical situations. These findings should not be interpreted as indicating any absence or decrease in addiction liability for this drug as compared with other strong analgesics.

Levin[3], reporting on the use of Leritine (HCl) in 57 dental patients in dosages of 25 mg., indicated remarkably useful activity in those postoperative dental situations which require a more potent analgesic agent. Relief of pain was described as excellent in thirty instances, satisfactory in twelve, fair in ten, and uncertain in five. Undesirable effects were again described as rare, except for lethargy, which was observed in about 30 per cent of patients. These findings were in contrast to those noted in a control group of 50 patients who had undergone similar surgery and whose pain was treated with aspirin or other analgesics—with and without codeine. In these patients "control of pain . . . was somewhat ineffective in the majority of cases when the pain was severe."

Evidence dealing with the absence of addic-

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Adapted from a presentation before the American Academy of Dental Medicine, May 16, 1959, Atlantic City, New Jersey.

tive liabilities of Darvon and Zactirin is apparently convincing. Further controlled data as to the effectiveness of Darvon and Zactirin in dealing with moderate dental pain (to demonstrate efficacy equivalent to that obtainable with codeine) are still needed. A direct comparison of the usefulness of Leritine and Demerol in dentistry has not yet been reported.

Keesling and Keats[4] reported the results of an important study employing careful controls in which four analgesic drugs and a placebo were administered in random order double-blind in an attempt to study the capacity of these drugs to control pain of the so-called "dry socket" type in ambulatory patients. Although all four analgesic drugs produced higher pain relief scores than the placebo, 61 per cent of the 67 placebo treated patients obtained adequate relief from pain. In addition, these placebo treated patients experienced a lesser incidence of unpleasant side reactions than did the patients in the analgesic treated series.

This study further emphasizes the imperative importance of experimental design and placebo controls in studies of analgesics.

CONTROL OF APPREHENSION, SEDATIVES, TRANQUILIZERS

Undoubtedly, few fields of drug therapy are as fertile as those concerned with the control of apprehension in dental patients. During the past year reports on meprobamate, Sparine, Valmid, and mephenesin, amongst others, appeared in the dental literature.

According to a recent Fauchard Academy Poll[5], some 44.5 per cent of the dentists interviewed indicated that they had prescribed tranquilizers at some time through a prescription —although a number of those answering in the affirmative noted that such prescriptions were only in rare instances. Results suggested that tranquilizers are prescribed most often before oral surgical procedures, for which 23 per cent of dentists prescribed tranquilizers routinely and 44 per cent prescribed them frequently—as opposed to operative procedures, which found only 2 per cent of dentists prescribing tranquilizers routinely and 15 per cent frequently. Use of tranquilizers in periodontia (13 per cent routinely) and endodontia (8 per cent routinely) was intermediate in frequency.

Whether these replies represented the actual performance of dentists, their subconscious desires, or wishful thinking is not clear, but it is questionable whether such figures can be demonstrated in actual prescriptions presented to pharmacies.

A study by Sherman, Fiasconaro, Cain, and Fertig[6] was able to demonstrate no significant differences between mephenesin and a placebo when administered to apprehensive dental patients. In this double-blind study, 500 mg. of mephenesin was administered to 51 patients, while an equal number received a placebo.

Redish and Ping[7] described a double-blind study of 212 unselected adult patients who received Valmid (ethinamate), a new non-barbiturate sedative, 20 to 30 minutes prior to oral surgery. Sedation was evident after a relatively short period with no observed side effects. Ninety-nine of 114 patients receiving the active drug and eight of 98 patients receivng the placebo felt that the preoperative medication was of value; "the evaluations of the investigators coincided closely with those of the patients."

Szmyd, McCall, and Enright[8] studied the effects of Sparine (promazine) and meprobamate in the control of postoperative sequelae of oral surgery. In this double-blind study of 150 patients, therapy with 25 mg. of Sparine, or 400 mg. of Meprobamate, or lactose (placebos) was begun preoperatively the night before surgery and was continued on the morning of the surgery and postoperatively (one capsule three times a day) until a total of 11 capsules had been used. Szmyd et al concluded that:

"1. No significant effect was noted on the postoperative sequelae of pain, swelling or trismus.
2. Tranquilizing drug therapy failed to influence the postsurgical narcotic demand.
3. The incidence of untoward reactions was not significantly increased.
4. The number of days lost during post-

surgical convalescence was increased significantly for patients on promazine ($P < .05$) and meprobamate ($P < .01$) therapy."

Although the incidence of serious untoward reactions to meprobamate is undoubtedly small considering its widespread use, a case has been presented by Brachfeld and Bell[9] describing severe ulcerative stomatitis and proctitis as manifestations of meprobamate idiosyncrasy. Lesions developed on several occasions after the administration of the drug. Cortisone acetate (50 mg. q4h) was effective in controlling the lesions in 24 hours.

Harris[10] has concluded (and this reviewer concurs in these sentiments) that it "remains to be demonstrated that single doses of the (available) tranquilizers can be effective in dental situations, when agents of relative safety are administrated. . . . At the time of this writing, the author believes the ataractic agents may not be properly used in ordinary dental situations."

Buckman[11] has presented a series of dosages for balanced, safe, reliable, easily administered premedication for pedodontic out-patients combining the administration of meperidine, scopolamine, and pentobarbital. Pentobarbital is administered orally 90 minutes preoperatively; while meperidine and scopolamine are administered 30 minutes later in a combined subcutaneous injection. For instance, for a 3-4 year old child weighing 30-35 pounds the dosages suggested are: 12 mg. of demerol, 0.15 mg. of scopolamine, and 30 mg. of pentobarbital.

DOSAGES FOR PREMEDICATION

Age	*Weight (Pounds)*	*Meperidine (mg.)*	*Scopolamine (mg.)*	*Pentobarbital (mg.)*
1	20	10	0.10	15
2-3	25-30	10	0.15	15
3-4	30-35	12	0.15	30
4-5	35-40	15	0.17	30
5-6	40-45	18	0.17	50
6-8	45-55	20	0.17	50
8-10	55-65	25	0.17	60
10-12	65-80	35	0.20	60
12-14	80-110	50	0.25	90

A relaxed, sedated, and cooperative patient is said to result!!

ANTIBACTERIAL AGENTS

No single group of relatively recently introduced drugs has had so profound an effect on clinical dental practice as have the antibiotics. However, the development of resistance of organisms to these agents has necessitated intensive effort to control these resistant strains in particular—at the same time as we search for new, safer antibiotics to cover the spectrum not as yet dealt with satisfactorily.

Hudson, Sanger, and Sproul[12] have described an effective system for minimizing the increasing problem of hospital acquired bacterial infections caused by antibiotic resistant strains. The authors report that over "four-fifths of the bactera in air can be removed by the use of . . . bactericidal conditioning." Antibacterial formulations are applied in floor preparations, in air filters, to metal and glass, in spraying all ceilings, floors and mattresses, and for laundry, furniture, and draperies. Air filtration through double filters impregnated with bactericide was also utilized. Many formulations were used, each individually suited to the particular task of decontamination at hand.

Mourfield and Barron[13] have reported on a clinical evaluation of the use of erythromycin dental cones in oral surgery. Each cone contained 5 mg. of erythromycin as the glucoheptonate salt with a filler of sodium bicarbonate and sodium chloride. Solubility and disintegration time were found to be between 20 and 40 minutes. Five hundred and fifty-seven patients were studied in the experimental group from October, 1956, to February, 1957, while the 653 untreated control subjects were reported as historical controls—having been seen previously from June, 1956, through September, 1956. The observations, thus, were not undertaken by a double-blind technique. However, according to the authors, "the use of erythromycin dental cones in the extraction wound reduced the incidence of osteoalveolitis and/or post-extraction cellulitis to 1.18 per cent in 917 extractions, as compared to 13.30 per cent in 902 extractions for the control period." No

evidence of side reactions, either local or generalized, was observed attributable to the erythromycin cones.

There are many problems surrounding the development of staphylococcal resistance to available antibiotics. A serious need exists for antibiotics to "back up the line" to handle such resistant strains. Erythromycin fills such a need effectively in many instances. However, resistance to erythromycin not infrequently also develops. Thus, there remains much question as to the desirability of administering erythromycin topically in any situation wherein the problem of resistant organisms may be increased—should initially sensitive staphs develop resistance to erythromycin also. The relatively modest gains for the patient which might accrue from such topical therapy must be weighed against the possibility that this important antibiotic might be less effective at a time when it might even have been lifesaving in the treatment of a more important medical infection. The implications as to the usefulness of the antibacterial cone implant technique, however, remain of marked significance.

A group of 51 patients all presenting with infections of dental origin (all of whom would ordinarily have received procaine penicillin intramuscularly) were studied by Brown, Thomassen, and Singler[14], following the administration of Albamycin (novobiocin sodium) in doses of 500 mg. twice daily. The infections treated included, in the main, acute periapical pathosis, lateral periodontal abscess, and acute pericoronitis. The range of the course of treatment required was from one and one-half days at a minimum to four days at a maximum. Usually, patients did not receive any other therapy until a favorable response was achieved, except for six patients who received conservative surgical treatment. Daily follow-up of patients revealed that 90 per cent of the patients "responded in a manner rated as good or fair." These effects, the authors concluded, compared "very favorably with other antibiotics employed in dentistry."

Side reactions were of minor consequence in six patients. In one patient a skin rash with pruritis appeared the first day of therapy. All evidences of side reactions disappeared rapidly following discontinuation of novobiocin therapy.

In view of the activity of novobiocin against many strains of staphylococci presently resistant to other antibiotics, an action it has in common with erythromycin, it can be concluded that novobiocin may well be useful in the treatment of oral infections. However, where possible, *in vitro* sensitivity tests should be undertaken prior to institution of novobiocin therapy to demonstrate the need for its use—on the basis of resistance of the organism to other antibiotics. Otherwise, since resistance to novobiocin may develop, the usefulness of this antibiotic can also be expected to wane rapidly following indiscriminate use. Where *in vitro* tests are not possible, the authors suggest quite properly that "novobiocin should be used only for infections that are not responding to a previously employed antibiotic and where resistant staphylococci are suspected."

A detailed, comparative cross correlation (using disc sensitivity determinations) of the sensitivities of 289 pathogenic microorganisms to 13 antibacterial agents was presented by Kutscher, Seguin, Rankow, and Piro[15] with special reference to a new antibiotic, thiostrepton. The collated data suggested "that thiostrepton has a useful spectrum of effective antibiotic activity directed primarily against hemolytic Staphylococcus aureus, Streptococcus viridans, Staphylococcus albus, and Streptococcus hemolyticus" . . . organisms of special interest in terms of oral infections.

Baer, Goldman, and Scigliano[16] have described bacteriological and clinical studies on the use of a bacitracin periodontal dressing in which both an antibiotic and a hemostatic agent were incorporated. Preliminary studies indicated that a zinc oxide, rosin, gelfoam, zinc bacitracin powder was utilized in the dressing of choice. This mixture contained 3,000 units of zinc bacitracin/gram of the other ingredients.

Patients with a diagnosis of gingivitis or periodontitis, each of whom required a gingivectomy as part of their periodontal therapy, were studied, not blind to the investigators. One hundred cases were treated with the bacitracin-

containing formula, while the next 100 consecutive cases were studied with a control dressing containing no antibiotic. Packs were left for one week. Healing occurred at an optimal rate in both groups. No allergic reactions occurred in either group. In the bacitracin-treated group, 83 per cent of patients were not aware of an unpleasant odor or taste during the week the pack was left in place. However, in the control series, 25 per cent complained that their food was unpalatable and 58 per cent reported that they were aware of an unpleasant odor or taste.

In a further and controlled experiment in which one portion of the mouth was dressed with the bacitracin pack while one part was dressed with the control pack, in every one of 50 cases the teeth were noted to be cleaner and less stained on the bacitracin-treated side. There was also less debris under and around the bacitracin dressing. Again, no allergic reactions or fungus infections occurred in any patient.

The choice of bacitracin as an antibiotic for use in periodontal dressings had been based on the following suggested properties of bacitracin: (1) it rarely produces sensitivity after repeated doses; (2) it is not inactivated in the presence of the enzymes studied to date; (3) it is not inhibited by organisms which produce penicillinase; (4) it is bactericidal as well as bacteriostatic; (5) it has a comparatively wide spectrum of antibiotic activity; and (6) it is not inhibited by necrotic tissue, pus, exudates, secretions, and blood serum.

The Journal of the American Medical Association has just published a second forceful editorial[17] on the abuse of antibiotic lozenges. Attention is called to the general principle that "deeply seated bacteria are best approached systemically. It is dangerous to rely on local medication alone in the treatment of severe infections of the throat." Oral infections are, of course, in no way different. "Inadequate dosage and indiscriminate usage of topical antibiotic and sulfonamide compounds in the treatment of infectious diseases of the throat can breed resistant bacterial strains. Their promiscuous use is unwarranted in trivial infections; moreover, their use is limited from time to time by the development of allergic reactions, . . . by the acquisition of antibiotic-resistance . . . states, and by their ability to mask symptoms occasionally. Finally, stomatitis has been traced to various antibiotics and sulfonamides present in a variety of lozenges, troches, pastilles, and medicated chewing gum."

A number of topical antibiotics, including bacitracin and tyrothricin, should not be included in such a blanket statement, since they have not been incriminated in the problems noted above . . . although their usefulness is not established either.

In a study at the Department of Industrial Medicine of the Hygiene Institute of the University of Tubingen, Germany, Humperdinck and Wendel[18] report that of the patients treated for contact dermatitis, 40 per cent were dentists, physicians, and their assistants. Drug allergy (especially to antibiotics) represented an increasing source of allergy.

These papers and others indicate that when a failure with antibiotic therapy is observed, it can more often than not be attributed to one of the following problems: (1) an essentially insensitive microorganism; (2) development of resistance by microorganisms; (3) superinfection; (4) inadequate dosage; (5) tardy initiation of therapy; (6) fatal manifestations or complications of a disease not influenced by bacteriostatic or bactericidal action (for example, pemphigus); (7) failure to provide required surgery; (8) lack of required comedication; or (9) the use of an agent topically, where a systemic agent was needed and indicated.

VITAMINS

Many persons will be encountered who require nutritional supplements. Also, new and interesting pharmacodynamic actions of these nutrition factors are constantly being uncovered. Nevertheless, of all the drug preparations administered to patients, none are more promiscuously used than the vitamins—especially multi-vitamin preparations.

The Council on Foods and Nutrition of the American Medical Association has published[19] a detailed statement on vitamin preparations as dietary supplements and as therapeutic agents.

The Council's present position on the indications for the administration of vitamins as supplemental and therapeutic agents follows:

"Healthy adults receiving adequate diets have no need for supplementary vitamins except during pregnancy and lactation when 400 U.S.P. units of vitamin D daily are required if the intake of vitamin D-fortified milk is low."

"Healthy children fed adequately need *no* supplemental vitamins except vitamin D, which should be supplied throughout the growth period."

"Multiple vitamin preparations should contain only those vitamins shown to be essential in human nutrition or metabolism."

"It has not been demonstrated that larger (amounts of vitamins) than the Recommended Daily Allowance . . . are beneficial under ordinary physiological conditions. . . ."

The Council considers vitamin preparations containing about one-half the Recommended Dietary Allowance as useful dietary supplements, "during periods of illness or deranged mode of life, which may result in impairment of absorption of nutrients or deterioration of dietary quality. . . ."

The preparations containing one to one and one-half times the Recommended Allowances would be useful when supplementing restrictive therapeutic diets or when prolonged illness or other causes significantly reduce food intake. Preparations containing three to five times the Recommended Allowances should be reserved for use in therapy of specific vitamin deficiencies.

"It is seldom necessary to administer vitamins in amounts greater than three to five times the Recommended Dietary Allowance. In the rare instances in which larger quantities seem indicated, the vitamin(s) in question should be given separately."

"The amount of folic acid in supplementary multivitamin preparations should be no greater than that available from an abundant diet, approximately .3 mg. per day. Common experience indicates that this is a quantity which will seldom support hematological function in pernicious anemia and therefore will not mask the diagnosis of this disorder . . . or permit neurological lesions to develop while maintaining hematological remission. Vitamin B_{12}, folic acid, or iron, when specifically indicated, should be administered as the single factors required.

The A.M.A. Council has noted particularly that the "inclusion of excessive amounts of fat-soluble vitamins in therapeutic mixtures is scientifically unwarranted and potentially dangerous. The absence of excretory pathways for vitamins A and D . . . makes it necessary to limit vitamin A and D intake in order to avoid the development of hypervitaminosis." They conclude that "daily dosage of more than 25,000 U.S.P. units of vitamin A should be followed carefully for toxicity." With regard to chronic vitamin A overdosage, depending upon the severity of the intoxication, children older than one year may develop various minor signs and symptoms including anorexia, weight loss, irritability, pruritis, cutaneous eruptions, and angular stomatitis and cheilitis. Later signs include *painful swellings over the long bones* with bone and *joint pain,* bone tenderness, and cortical thickening in tubular bones. Serum vitamin A levels are increased and are useful diagnostically. Vitamin A intoxication in adults is seen less often but causes symptoms which are similar but usually milder."

In hypervitaminosis D, the A.M.A. Council has concluded that "a daily intake of 1,800 U.S.P. units continued over a long period of time may be mildly toxic in children" depending also on exposure to ultraviolet light, dietary calcium, and the endocrine system.

"Symptoms and signs of more severe intoxication may include renal damage and *metastatic calcification.* . . . When large dosages of vitamin D are administered, frequent determinations of serum and urine calcium should be made. An increase in the serum calcium to a level above 11 mg. per 100 ml., occurring in association with a high intake of vitamin D, is an indication" to interrupt therapy.

Urbach[20] studied the clinical use of high dosage vitamin A in the treatment of leukoplakia and lichen planus in seven patients treated with vitamin A troches and in one patient treated with vitamin A ointment. Of

the seven patients treated with vitamin A buccal tablets (150,000 units per tablet, administered three times daily, allowed to dissolve in the area of the lesion during a 30-minute period), five patients improved strikingly over a two-three month period, one patient showed slight improvement, and the other none. Two patients with lichen planus were similarly treated with marked improvement, one with complete remission of visible lesions. No toxic symptoms were noted despite the administration of 450,000 units per day over, in some instances, a four-month period.

Vitamin A was used in this latter study in the treatment of a specific lesion and was administered for a specific pharmacodynamic action—which may or may not be entirely characteristic of vitamin A as this vitamin's action is evident in normal physiology or deficiency states. The absence of side effects in adults treated by Urbach, which is reinforced by a large series of patients of our own at even higher dosages, indicates a margin of safety with vitamin A considerably wider than the A.M.A. Council report indicates.

Thus, as useful as the A.M.A. Council warning may be, one should not embrace these admonitions overenthusiastically lest an important group of oral disturbances go untreated.

INJECTIBLE LOCAL ANESTHESIA

Few drug groups are actually as close to the millenium as are in local anesthetics. Yet, even here, efforts are being made to introduce still more effective, less toxic drugs, e.g., drugs with an improved therapeutic index, to meet every conceivable anesthetic need.

The techniques of administering these agents had not been the subject of intensive efforts or radical change for many years until Margetis, Quarantillo, and Lindberg[21] described the application of the jet injection technique to local anesthesia in dentistry. The standard Hypospray has been adapted to intraoral injections by means of a contra-angle dental tip which facilitates placement of the jet injector orifice in the desired area of the mouth. In the study of 66 patients, dental local anesthesia of adequate depth and duration was usually obtained for the successful completion of routine operative and surgical procedures. Although a relatively high incidence of bleeding at the site of injection (slight bleeding in 59 per cent, moderate to heavy bleeding in 13 per cent of the patients) was observed and although the operative procedures could be accomplished successfully in only 87 per cent of the cases, the authors conclude that the "Jet injection technique has the following advantages: (1) no discernible injection pain; (2) danger of transmitting infectious hepatitis may be less than with the conventional syringe and needle; (3) ease of sterilization; and (4) the psychic trauma of needle injections is obviated." The authors conclude that the device is deserving of further investigation in clinical dentistry.

A double-blind comparative clinical evaluation of some commonly used local anesthetic compounds was undertaken by Kramer[22]. The local anesthetic compounds evaluated included: 2 per cent procaine, 2 per cent xylocaine, 1.5 per cent primacaine, 0.4 per cent ravocaine, and 2 per cent procaine with 0.15 per cent pontocaine—the above anesthetic solutions containing varying available concentrations of epinephrine. On the basis of 3,703 injections, the author concluded from his investigation that induction times were within satisfactory practical limits for all solutions tested. Among others, the following observations were made:

> "The newer, more potent compounds produced a noticeable increase in depth of anesthesia. Of these, lidocaine 2 per cent with epinephrine 1:50,000 was superior for both conductive and infiltrative anesthesia. . . ."
>
> "The occurrence of untoward symptoms was very low and indicated that the more potent compounds were no more likely to produce untoward symptoms than procaine 2 per cent in clinical use."

Double-blind studies in humans by Harris and Worley[23] suggested that "1.5 per cent Primacaine (metabutoxycaine hydrochloride) and 2 per cent Xylocaine (lidocaine hydrochloride) with vasoconstrictors of approximately comparable concentrations produced anesthesia in about the same time and of comparable

profundity." Primacaine anesthesia, however, was found to be of markedly shorter duration, a difference being noticeable 15 minutes after injection. The end point of these studies involved "determination of the minimal quantity of electricity necessary to elicit pain when applied to a metallic dental restoration before and after injection of local anesthetics."

Thomason[24] has reported on the application of Dyclone (dyclonine), as a topical anesthetic, to the oral mucous membranes in the course of 1,224 procedures prior to intraoral injections, lancing, extraction of deciduous teeth, or to control gagging. Dyclonine was used in a 0.5 per cent concentration, in which concentration it has a phenol coefficient of 3.6 against Staphylococcus aureus—a perhaps useful additive action. It was noteworthy that one of the most important requirements for obtaining adequate topical anesthesia in the mouth was met—the topical anesthetic was permitted to remain in the area for three minutes prior to injection or three to five minutes prior to lancing an abscess. No control observations are reported, however.

The results of a survey undertaken under the auspices of the New York State Dental Journal[25], concerning the use of local anesthetics in office practice (based on the replies of 65 practitioners) suggested, among other things, that:

1. Patients are infrequently, probably too infrequently, premedicated in an effort at prophylaxis against reactions to injectible local anesthetic agents.
2. A surprising number of operators make use of topical anesthetic agents before administering injections — and consider their use efficacious.
3. But few of these practitioners wait the time required for reasonable anesthesia to supervene (2-3 minutes) before injecting.
4. In the experience of the respondents, increased concentration of epinephrine in injectible local anesthetic solutions seems associated with increased incidence of noticeable side reactions.
5. Most men are satisfied with the currently available local anesthetic agents.
6. Still further decreased duration of anesthesia for some operations, fewer side reactions, and faster onset of action were qualities concerning which many respondents felt an improvement was still both possible and desirable. Most respondents placed their incidence of reactions to local anesthetics at about 1:100.

It is thus evident that even in the field of local anesthetics, and particularly in the field of topical anesthetics, further improvements are apparently still possible.

TOPICAL HEMOSTATICS

Morris and Ping[26] have described the use of a new sterile absorbable hemostatic dental cone containing modified carboxymethylcellulose. Their preliminary clinical study indicated this preparation to be effective in controlling most postextraction bleeding. No increase in the incidence of postoperative sequelae or untoward reactions was observed in the 153 patients studied. The gelatinous coagulant formed by the union of the blood with the active agent may effectively block ruptured vessels. A slight pressure is apparently exerted against the walls of the socket as the material swells. Contraindications to the use of this material would appear to be negligible, although its use cannot be expected to be effective if it is anticipated that ligation will prove the only successful method of hemorrhage control.

ANTIHISTAMINICS

The usefulness of antihistaminics for the control of postoperative symptomatology remains confused by contradictory studies, some of which have reported benefits from antihistaminic therapy, but most of which have disclaimed a beneficial action.

Krasner[27] has reported on an uncontrolled series of 189 patients undergoing surgical procedures in which excessive inflammatory response was anticipated. Marked reduction of postoperative sequelae to oral surgical procedures with combined therapy was obtained by means of various postoperative corticosteroid-antihistamine medication regimens with tablets each

containing 2.5 mg. prednisone, 4 mg. Chlortrimeton, and 75 mg. of ascorbic acid. This medication was administered one tablet, four times a day, for three days. In addition, most patients received antibiotic supplements.

Following the report by Gaillard[28] indicating the successful use of antihistamine therapy in the treatment of dilantin hyperplasia, Ingle, Howard, and Zwick[29] studied 50 patients from the University of Washington Seizure Clinic to investigate the effect of the same antihistaminic, Chlortrimeton, on these lesions. Double-blind placebo controlled studies over a two-month period did not "reveal any conclusive evidence to support the clinical use of Chlortrimeton in the reduction of Dilantin gingival hyperplasia."

In a study of 18 epileptic patients, Brinker[30] was also unable to substantiate the report by Gaillard. Holowach, Thurston, and Gilster[31] have also reported on four such cases in which the administration of antihistamines was not effective.

Although the use of antihistaminics has not realized their theoretical potential, one cannot assume that this approach to the control of postoperative sequelae may not yet be found valuable as new agents are introduced.

CORTICOSTEROIDS

The increased use of the corticosteroids in dentistry has largely paralleled the increased interest of the dental profession in the field of oral medicine. It is not surprising that, occasionally, contradictory reports have appeared in our literature. These studies have dealt with many members of the increasingly large family of corticosteroids which now includes, among others: cortisone and hydrocortisone, prednisone and prednisolone, fluorohydrocortisone, triamcinolone, triamcinolone acetonide, dexamethesone, and very recently, Oxylone, et cetera.

Rapoport and Abramson[32] have described an uncontrolled study of 60 cases concerned with the application of hydrocortisone in pulp-capping and pulpotomy procedures. Hydrocortisone acetate in saline suspension (25 mg./cc.) was flooded over the exposed pulpal area or the powdered drug was applied to the exposed area using in some instances an aseptic technique and in other instances a non-aseptic technique. Ultimately, use was made of a fast-setting zinc oxide-eugenol paste followed by a zinc oxyphosphate cement and a final filling material. The percentage of teeth remaining pulp test vital following the use of the various techniques ranged from 80 per cent to 93 per cent after a time lapse of six months following insertion of the final restorations. Although these figures are presented simply as factual findings, one cannot help but speculate that perhaps such data may not portend improved efficacy in a controlled study comparing the results obtained in untreated teeth with those obtained with the above regimens.

Ferrigno[33] reported on the treatment of a wide variety of oral mucosal lesions such as marginal gingivitis, herpetic stomatitis, lichen planus, et cetera. Fourteen patients were treated with a preparation containing fluorohydrocortisone 0.25 per cent, 13 patients with hydrocortisone 2.5 per cent, and 15 with pyridoxine 2.5 per cent, each drug being incorporated in an ointment. Patients applied one or the other of the active agents to the lesion on one side and a placebo control ointment to the lesion on the opposite side. In all cases, lesions were bilateral in nature . . . so that in each instance the patient served as his own local control. Medication was applied three times daily for periods of time ranging from seven days to six months. This study was conducted blind to the patient but not so to the investigator.

On the basis of clinical observations, Ferrigno concluded that "there were no differences observed between the lesions treated by the drugs and those by placebos." The author noted that the method of local control itself had shortcomings particularly in terms of the possibility that some medication was carried over to the control side by the saliva.

It is not mentioned, however, that with such a potent steroid as fluorohydrocortisone the systemic absorption of this drug which may have occurred may have been sufficient to result in relatively equal improvement of both the locally drug-treated and locally placebo-treated lesions. Such an hypothesis would help to explain the marked improvement noted in some place-

bo-treated areas in the fluorohydrocortisone treated series especially — improvement which would probably not be expected either on the basis of spontaneous remission or massage action alone.

Truelove and Morris-Owen[34] studied the effects of a tablet containing 2.5 mg. of hydrocortisone in a lactose base in the treatment of 52 cases of aphthous ulcerations of the mouth. Rapid relief was noted in most cases considered of "minor severity", while improvement was noted in many of those cases categorized as of "major severity". Tablets were given in a maximum dosage of four tablets a day (10 mg. hydrocortisone); while maintenance dosage was usually less.

A series of 15 patients with ulcers of the oral cavity were treated with 0.25 per cent fluorohydrocortisone by Claus, Estep, and Orban[35]. The active ingredient was applied to the lesion in an ointment and was gently massaged into the dried area for five minutes. "In most instances, the relief from pain was dramatically rapid and the healing of the lesion was much more rapid than previously experienced with other treatments. The number of treatments necessary varied with the severity of the lesion."

The authors noted that isolation, drying, and massaging of the drug into the lesion for a definite time was of extreme importance and emphasized that the treatment is not one in which the ointment can be given to patients for self-treatment; thus, they urged the administration of the ointment by the *dentist* as described above rather than to permit saliva, mucous, and exudate to defeat the efficacy of therapy.

Zegarelli, Kutscher, and Silvers[36] have used Kenalog (triamcinolone acetonide, another new synthetic corticosteroid—a derivative of triamcinolone) with marked success in the treatment of episodes of recurrent ulcerative stomatitis in nine patients. This topically applied corticosteroid was incorporated in a concentration of 0.1 per cent in a new adhesive vehicle. This formulation was found to be effective in aborting lesions (if applied promptly following prodromal symptomatology) and in obtaining rapid healing or beginning epithelialization of existing ulcers. It was emphasized that, in common with other corticosteroids, the administration of Kenalog does not prevent the recurrence of lesions and does not result in any decrease in the size, severity, or duration of recurrent lesions—unless the drug is readministered. The remission period between the lesions is not increased if therapy is discontinued upon healing of a given crop of ulcers. Thus, Kenalog therapy should be administered only with the full realization that its action is entirely suppressive and temporary rather than curative.

"Since Kenalog is a powerful corticosteroid which is fully active systemically, the total dose administered (averaging as much as 1 mg. of the steroid per day) and the duration of therapy must be watched carefully."

The adhesive vehicle used "coats lesions with a desired therapeutic agent over prolonged periods thus: (1) increasing the potential effectiveness of drugs by means of maintaining higher concentrations of the agent at the site of a given lesion; (2) decreasing the total amount of drug which need be applied; (3) increasing the duration over which the material will remain in situ; (4) decreasing the amount of material which, following displacement from the area, would be swallowed and hence be available for systemic activity; and (5) providing also a mechanically protective layer over the lesion."

When all of the available reports are sifted and placed in perspective, it can be concluded that the corticosteroids are useful in varying degrees in the treatment of a wide variety of acute and chronic lesions of the oral mucous membranes. Their application to exclusively dental problems has scarcely been explored. Perhaps, as is pointed out in two of the papers cited, the secret of efficacious use of these compounds may be in the technique of their application. If so, the corticosteroids would prove to be but one more drug group in which the mode of administration will have been found highly important to successful therapy.

DESENSITIZATION OF SENSITIVE DENTIN

A double-blind clinical evaluation of a desensitizing toothpaste containing 1.4 per cent

formalin has been reported by Toto, Staffileno, and Gargiuolo[37]. Seventy-one adults under treatment for chronic periodontitis were studied *particularly* in terms of sensitive teeth. Forty-seven subjects received the formalin-containing dentifrice, while 24 received the placebo dentifrice. The dentifrice was to be used for brushing the teeth after each meal for a period of three minutes. Forty of 41 patients with sensitive teeth were free of the complaint following the use of the formalin-containing dentifrice for a period of three weeks. Some diminution of sensitivity was present in 19 subjects who brushed with a placebo dentifrice, but these patients were not free of the complaint after five weeks of therapy. Hence, the use of this desensitizing dentifrice may be recommended "as an adjunct during periodontal therapy in order to bring under control the complaint of sensitivity."

In the concluding paragraphs a report dealing with some interesting generalities concerning the investigation of the efficacy of drugs will be considered.

A series of observations have been made by Modell and Houde[38], who have studied in great detail some of the factors influencing the clinical evaluation of drugs. Their philosophic conclusions are pertinent to the entire field of drug therapy and are basic to the evaluation of the usefulness of any agent in the treatment of any oral disease. They have concluded, "that, in addition to the use of the placebo control, the double-blind control should also be used whenever and wherever it is feasible. We conceive of no disadvantage in the application of the double-blind control—only protection against spurious data. It does not handicap design or reduce sensitivity, but it must be used to deal only with bias and psychic factors which cannot be eliminated. We also emphasize as strongly as possible that its use will not validate otherwise poorly designed experiments. When employed in a poorly designed study, it may prevent a false-positive interpretation, but it may also lead to a false-negative interpretation . . .

"Each clinical evaluation must be sensitive enough to detect what it proposes to examine, and each experimental design must have built into it an indicator that is capable of such detection. A negative conclusion is without merit unless a demonstration is incorporated in the clinical evaluation that the method is competent to indicate a positive effect when it is present, i.e., an internal control. It is suggested that in clinical evaluation another demonstrably effective drug should always be used in addition to the placebo control to indicate this essential competence of the method. . . .

"We should like to state that the proof and establishment of the effects of many drugs, the proof of the superiority of one drug over another, require a plan which is based not only on the principles laid down here but which is also designed with due regard to the particular drug, the particular subject, and the particular circumstance under which the experiment must be conducted. There is as yet no standard method—there are only basic requisites, essential controls, and some well-established procedures—but each different pharmacodynamic action of a drug may need a different subject, a different control, a different circumstance, or a different design for its proper evaluation."

It is hoped that reports such as that by Modell and Houde will come to be considered important guideposts for the performance of scientific investigations and that they will further serve as evidence of an awakening of interest in research on the subject of research itself, a subject much in need of critical study.

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BIBLIOGRAPHY

1. Holte, N. O.: Narcotics and Other Analgesic Agents. J.A.D.A. 58:29 (April) 1959.
2. Therien, R. C., Lee, L. W., Malashock, E. M., and Davis, N. B.: Anileridine Hydrochloride. Its Clinical Use as an Analgesic and Sedative. J.A.M.A. 168: 2098 (December 20) 1958.
3. Levin, H. L.: Postoperative Dental Pain Treated by Leritine. Dent. Dig. 64:342 (August) 1958.
4. Keesling, R. and Keats, A. S.: The Efficacy of a Placebo and Several Oral Analgesics in the Treatment of Pain of Alveolar Osteitis. Oral Surgery, Oral Medicine, and Oral Pathology 11:736 (July) 1958.
5. Tranquilizers are Prescribed by 44.5 per cent of Dentists, Usually Preoperatively. Dent. Surv. 34:780 (June) 1958.
6. Sherman, H., Fiasconaro, J. E., Cain, E. A., and Fertig, J. W.: Control of Dental Anxiety with Mephenesin. J.A.D.A. 58:64 (March) 1959.
7. Redish, C. H. and Ping, R. S.: Ethinamate (Valmid) in Dentistry. Oral Surgery, Oral Medicine, and Oral

Pathology 11:742 (July) 1958.
8. Szmyd, L., McCall, C. M., and Enright, E. T.: Tranquilizing Drugs in Oral Surgery. J. of Oral Surgery 16:310 (July) 1958.
9. Brachfeld, J. and Bell, E. C.: Stomatitis and Proctitis as Manifestations of Meprobamate Idiosyncrasy. J.A.M.A. 169:1321 (March 21) 1959.
10. Harris, S. C.: Preoperative Medication of the Dental Patient. Dental Clinics of North America. Symposium on Practical Oral Therapeutics. W. B. Saunders Company, Philadelphia, Pennsylvania, Page 22.
11. Buckman, N.: Balanced Premedication in Pedodontics. D. Health Memo. U.S.P.H.S. 3-4 (March 15) 1958.
12. Hudson, P. B., Sanger, G., and Sproul, E. E.: Effective System of Bactericidal Conditioning for Hospitals. J.A.M.A. 169:1549 (April 14) 1959.
13. Mourfield, W. R., Jr. and Barron, J. M.: Clinical Evaluation of Erythromycin Dental Cones in Oral Surgery. Oral Surgery, Oral Medicine, and Oral Pathology 11:584 (June) 1958.
14. Brown, R., Thomassen, P. R., and Singler, J. M.: The Use of Novobiocin for Treatment of Infections of Odontogenic Origin. Oral Surgery, Oral Medicine, and Oral Pathology 11:598 (June) 1958.
15. Kutscher, A. H., Seguin, L., Rankow, R. M., and Piro, J. D.: Thiostrepton, a New Antibiotic. Antibiotics and Chemotherapy 8:576 (November) 1958.
16. Baer, P. N., Goldman, H. M., and Scigliano, J.: Studies on a Bacitracin Periodontal Dressing. Oral Surgery, Oral Medicine, and Oral Pathology 11:712 (July) 1958.
17. Abuse of Antibiotic Lozenges. J.A.M.A. 169:1191 (March 14) 1959.
18. Humperdinck, C. and Wendel, K.: Penicillin, Streptomycin, and Other Antibiotics Causing Allergic Reactions in Dentists, Physicians, and Their Assistants. Landarzt 34:104 (February 20) 1958; Dental Abstracts (January) 1959.
19. Council on Foods and Nutrition: Vitamin Preparations as Dietary Supplements and as Therapeutic Agents. J.A.M.A. 169:109 (January 3) 1959.
20. Urbach, F.: The Clinical Use of Vi-Dom-A Buccal Tablets in the Treatment of Leukoplakia and Lichen Planus. Bull Ass'n. Milit. Derm. 6:17 (March) 1957.
21. Margetis, P. M., Quarantillo, E. P., and Lindberg, R. B.: Jet Injection Local Anesthesia in Dentistry. U.S. Armed Forces Med. J. 9:625 (May) 1958.
22. Kramer, W. S.: A Comparative Clinical Evaluation of Some Commonly Used Local Anesthetic Compounds. J.A.D.A. 56:820 (June) 1958.
23. Harris, S. C. and Worley, R. C.: Comparative Local Anesthetic Potencies of Lidocaine and Metabutoxycaine. J.A.D.A. 57:66 (July) 1958.
24. Thomason, J. H.: Dyclonine in General Dental Practice. J. Calif. State Dent. Ass'n. 26:242 (July) 1958.
25. Kutscher, A. H. and Mercadante, J.: Local Anesthetics: Results of Cooperative Research Survey III. N. Y. State Dent. J. 24:210 (May) 1958.
26. Morris, E. E., and Ping, R. S.: A New Sterile Absorbable Hemostatic Dental Cone. J. Indiana State Dent. Soc. 10, 1958.
27. Krasner, H. A.: Marked Reduction of Post-Operative Sequelae to Oral Surgical Procedures with Combined Corticosteroid-Antihistamine Therapy. J. of N. J. State Dent. Soc. 6 (November) 1958.
28. Gaillard, R. A.: Antihistaminic Therapy for Gingival Hyperplasia due to Dilantin. New Eng. J. Med. 256: 76 (January 10) 1957.
29. Ingle, J. I., Howard, W. L., and Zwick, H. H.: Effects of Antihistaminic Therapy on Diphenylhydantoin Sodium (Dilantin) Gingival Hyperplasia. J.A.D.A. 58:65 (March) 1959.
30. Brinker, G. N.: Six Months with Antihistamine and Gingival Hyperplasia due to Dilantin. J. Indiana Dent. Ass'n. 37-12 (April) 1958.
31. Holowach, J.,Thurston, D. L., and Gilster, J. E.: Antihistamine Therapy for Gingival Hyperplasia Due to Diphenylhydantoin. New Eng. J. Med. 259:180 July 24) 1958.
32. Rapoport, L. and Abramson, I. I.: Application of Steroid Hormones in Pulp-Capping and Pulpotomy Procedures. Oral Surgery, Oral Medicine, and Oral Pathology 11:545 (May) 1958.
33. Ferrigno, P. D.: A Study of the Topical Administration of Hydrocortisone Acetate, 9-alpha-Fluorohydrocortisone Acetate and Pyridoxine Hydrochloride Upon Oral Lesions. J. of Perio. 29:137 (April) 1958.
34. Truelove, S. C. and Morris-Owen, R. M.: Treatment of Aphthous Ulceration of the Mouth. Brit. Med. J. 1:603 (March 15) 1958.
35. Claus, E. C., Estep, J. T. and Orban, B.: Treatment of Acute Ulcerative Lesions of the Oral Cavity. Oral Surgery, Oral Medicine, and Oral Pathology 10:1176 (November) 1957.
36. Zegarelli, E. V., Kutscher, A. H., and Silvers, H. F.: Triamcinolone Acetonide in the Treatment of Recurrent Ulcerative Stomatitis. J. of Perio. 30:63 (January) 1959.
37. Toto, P. D., Staffileno, H., and Gargiuolo, A. W.: A Clinical Evaluation of a Desensitizing Toothpaste. J. of Perio. 29:192, 1958.
38. Modell, W. and Houde, R. W.: Factors Influencing Clinical Evaluation of Drugs. J.A.M.A. 167:2190 (August 30) 1958.

THERAPEUTICA CLINIC ORAL IN 1958

Alicun Punctos Saliente de un Revista del Litteratura

per Dr. chir. dent. Austin H. Kutscher

SUMMARIO IN INTERLINGUA

Le litteratura tanto dental como etiam medical es ric in innumerabile studios de morbos tractate con varie agentes therapeutic. In le presente articulo le effortio esseva facite a presentar un breve summario de un numero considerabile de tal reportos, con le objectivo de producer un tableau general del tendentias e del constatationes notate in le scrutinio del litteratura currente. In le curso de iste condensation multe articulos esseva considerate le quales non es mentionate explicitemente. Le omission de un articulo particular non debe esser interpretate como un verdicto de absentia de signification o qualitate. Plus tosto, le articulos includite in iste revista esseva seligite proque illos representa un serie de observationes que es ben integrate e mutualmente complementante in lor totalitate. Altere studios in certe areas haberea potite esser substituite. Le anestheticos general, como gruppo distincte, non esseva considerate. Similemente, le agentes usate pro reducer le carie dental esseva excludite.

A NEW CONCEPT IN THE EVALUATION OF STERILIZING AGENTS USED IN ENDODONTICS

CHARLES C. SWOOPE, JR., D.D.S., and DONALD E. SHAY, Ph.D.†

INTRODUCTION

The purpose of this study was to develop a satisfactory *in vitro* method for comparing antimicrobial effectiveness of endodontic sterilizing agents. The method here described provides conditions similar to those encountered *in vivo*. The methods commonly used, such an inhibition zones on streaked plates and serial dilution tests, do not always present a true picture. Germicides frequently give excellent results *in vitro* but are unsatisfactory under clinical condition.

MATERIALS AND METHODS

Artificial dentin* was prepared as shown in Table I. Agar was used as a binder and as a substitute for the organic content of dentin. The inorganic components, agar, and water mixed and heated in an autoclave for twenty minutes. When removed and shaken, the material formed a stable suspension. The suspension was placed in a water bath and cooled to 50-55°C.

TABLE I
(ARTIFICIAL DENTIN)

Composition of Inorganic Ash

1. $Ca_3(PO_4)_2$		234.33 gm.
2. $MgHPO_4$		14.33 gm.
3. $CaCO_3$		7.33 gm.
4. $MgCO_3$		0.08 gm.
5. $CaSO_4$		0.08 gm.
6. CaF_2		0.08 gm.
7. $NaHCO_3$	(less than)	0.05 gm.
8. K_2CO_3	(less than)	0.05 gm.

Preparation

1. 77.33 gm. of Base Agar (organic matrix) was added to the above mixture.
2. To make small amounts, 76.8 gm. of inorganic ash may be combined with 23.2 gm. of organic base.
3. Water is added to produce a 4% agar gel as the organic matrix.

Petri dishes were poured with the cooled suspension, permitted to solidify and inoculated with *Micrococcus pyogenes* var. *aureus* and *Escherichia coli*. The plates were aerobically incubated for 48 hours at 37°C. No growth was observed indicating that the artificial dentin would not support bacterial growth. This plate is shown in Figure 1. Petri dishes were poured with nutrient agar and streaked with *Micrococcus pyogenes* var. *aureus* and *Escherichia coli*. Pieces of the artificial dentin ¼ inch thick and ½ inch in diameter were pressed onto the surface of the agar. The plates were incubated aerobically for 48 hours at 37°C. Growth occurred on all exposed agar but none on the artificial dentin, indicating that the artificial dentin would not inhibit bacterial growth. This plate is shown in Figure 2.

Fig. 1. A plate of inoculated artificial dentin. This plate had been incubated for 48 hours at 37° C. The lack of growth indicates that the material will not support bacterial growth.

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* The artificial dentin was prepared by the Department of Biochemistry, Baltimore College of Dental Surgery, Dental School, University of Maryland.

Fig. 2. Pieces of the artificial dentin have been pressed into the surface of streaked, nutrient agar plates. This plate was incubated for 48 hours at 37° C. No inhibition of bacterial growth occurred.

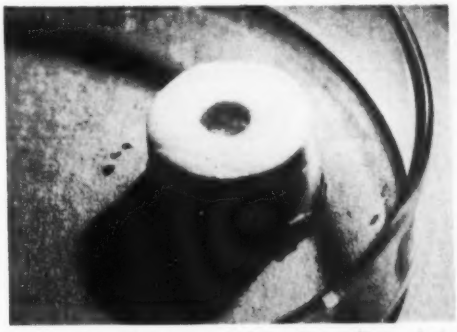

Fig. 3. Growth has occurred in the medium of the "denti-cylinder" in the presence of the drug.

Metal caps 1½ inch long and of ¾ inch diameter were filled with the compound. These caps are those commonly used to cover culture tubes. The compound was allowed to cool for one hour, to permit the agar to become completely solidified. It was then removed and a cork borer ¼ inch in diameter was used to make a hole lengthwise through the cylinder. The cylinder was sliced into segments which would fit into Petri dishes. These cylinders will be henceforth referred to as "denti-cylinders".

The "denti-cylinders" were placed in Petri dishes and sterilized by intermittent sterilization. Sterilization was accomplished in this manner without damage to the material.

Germicides were placed on the inside of the cylinder with a cotton swab. This corresponds to placing the germicide on the walls of a root canal with a paper point. The hole in the cylinder was filled with the culture media by means of a large syringe.

The basic medium used was trypticase-soy agar with added sugars.* Each drug** was tested with three different culture media: the base medium; base medium with 5% sterile saliva; and the base medium with 5% serum.

Broth cultures of *Micrococcus pyogenes* var. *aureus, Streptococuss viridans,* and *Lactobacillus acidophilus* were used. The stab technique was used for inoculation of the culture media in the "denti-cylinders." The plates with the "denti-cylinders" were then incubated aerobically for 48 hours at 37° C. The cylinders were then sliced lengthwise and the results observed.

The test series for each drug consisted of nine "denti-cylinders." Each test organism was used with the three different media.

Drug-free controls were set up using inoculated "denti-cylinders" with the three media.

RESULTS

Figure 3 shows a positive test. Bacterial growth has occurred in the medium in the presence of the drug. Figure 4 shows a negative test. No bacterial growth has occurred in the medium.

This project was a preliminary study in an attempt to develop a satisfactory test method. The test series was run twice for each drug. On the basis of the small number of trials included in this study, it would not be valid to state that one drug was superior to the other. In general, the polyantibiotic combinations appeared to be superior to the other materials.

CONCLUSIONS

This study was designed to develop an improved technique for comparing antimicrobial effectiveness of root canal germicides. By this

*Dextrose, maltose, and lactose were added in 1% concentrations. This gave an extra-rich culture media which would support the growth of *Lactobacillus acidophilus.*

**Synthobiotic, Kaodenol, PBSC, ant biot c cream, merthiolate, phemerol chloride and para-monochlorophenol.

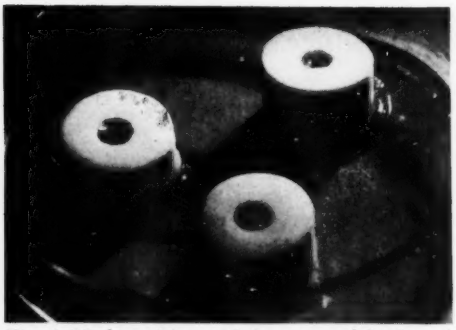

Fig. 4. No bacterial growth has occurred in the culture medium of the "denti-cylinder." The drug was successful in preventing growth when tested in this manner.

technique a more valid comparison of drugs for endodontic sterilization can be made. The method developed in this study approached *in vivo* conditions. The "denti-cylinders" represent the cross section of the root of a tooth on an enlarged scale. The drug application on a swab simulates the application with a paper point on the walls of the root canal. By adding sterile saliva and serum to the media, many of the variables which occur in the mouth are taken into consideration. These variables probably constitute the reasons for clinical failures of drugs which give good test results *in vitro*.

UN NOVE CONCEPTO IN LE EVALUTATION DE AGENTES DE STERILISATION USATE IN LE ENDODONTIA

per Dr. chir. dent. Charles C. Swoope, Jr., e Dr. phil. Donald E. Shay

SUMMARIO IN INTERLINGUA

Le objectivo del presente studio esseva disveloppar un saitsfacente methodo pro comparar in vitro le efficacia antimicrobie de agentes de sterilisation endodontic. Le methodo hic describite provide conditiones simile a illos incontrate in vivo. Le methodos que es usualmente usate, per exemplo le test de zonas de inhibition in placas a frottis o le test a dilution serial, non representa in omne casos le situation como illo es in realitate. Germicidas frequentemente produce excellente resultatos in vitro sed se monstra pauco satisfactori sub conditiones clinic.

Iste studio esseva planate pro disveloppar un meliorate technica pro le comparation de germicidas con respecto a lor efficacia in le canal del radice dental. Le technica permitte le effectuation de un plus valide comparation de drogas destinate al uso como sterilisatores endodontic. Le methodo disveloppate in le presente studio approxima le conditiones in vivo. Le "denticylindros" representa le section transversal de un radice dental in forma magnificate. Le application del droga per medio de un tampon simula le application per medio de un puncta de papiro al parietes del canal del radice dental. Per adder saliva sterile e sero al medio de cultura, multes del variabiles que occurre in le bucca es prendite in consideration. Iste variabiles representa probabilemente le causas del non-successo clinic de multe drogas con que bon resultatos esseva obtenite in tests in vitro.

Case Report

A CASE OF CUTANEOUS BLASTOMYCOSIS INVOLVING THE LOWER LIP

JAMES F. SMITH, B.S., D.D.S., PH.D.*

North American blastomycosis is caused by the organism Blastomyces dermatitidis. The organism is spherical and yeastlike, measuring 8 to 15 microns in diameter, with a thick capsule having the appearance of being doubly contoured. It multiplies by simple budding.

There are two clinical forms of this disease. The systemic is acquired by way of the respiratory tract and disseminates to lungs, bone, spleen, liver, and skin. The lesions characteristically are caseous nodules and abscesses. Diagnosis is dependent upon microscopic demonstration of the organism from the lesions. Culturing and animal inoculation may assist in making the diagnosis. Systemic blastomycosis carries a very high mortality rate.

The primary cutaneous blastomycosis organism entrance through the exposed skin and the small nodular lesion may remain localized for a long period of time. The nodule will eventually break down and form a raised lesion with a rough surface. There may be healing in the center of the plaque, with ulceration and purulent exudate surrounding the healed area. Histologically, the epidermis shows pronounced acanthosis with the epidermal components growing down into the dermis in irregular fashion. This has been termed "pseudoepitheliomatous hyperplasia." Micro-abscesses can be seen within the epidermis, with collections of polymorphonuclear leukocytes. In the dermis can be seen a diffuse infiltrate of leukocytes, lymphocytes, plasma cells, histiocytes, and varying numbers of giant cells. The Blastomyces dermatitidis with its thick wall may be seen in the giant cells and in the infiltrate.

The cutaneous type of blastomycosis is most often found in the age group from 25 to 45 years, with males being affected in a 10 to 1 ratio to females.

The case illustrated is that of a 35-year old colored male who had been admitted for treatment of tuberculosis. He stated that this lesion near the lower lip had started as a small, firm

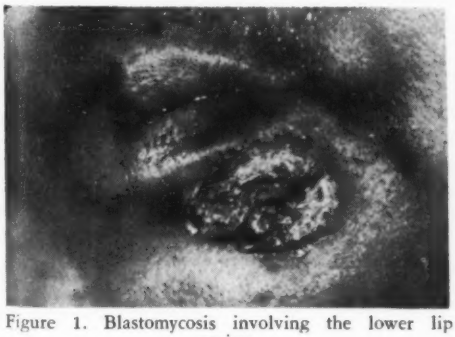

Figure 1. Blastomycosis involving the lower lip region.

Figure 2. Blastomycosis. Note the acanthosis, pseudoepitheliomatous hyperplasia and giant cells.

* Assistant Professor of Oral Medicine, University of Tennessee Dental School; Special Fellow, United States Public Health Department.

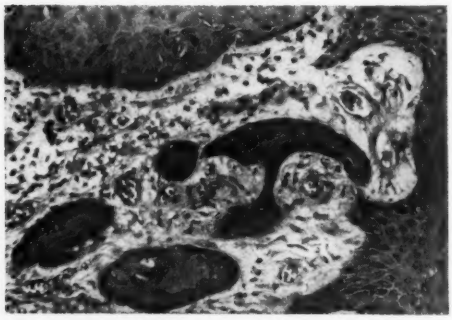

Figure 3. Englargement of Fig. 2, demonstrating pseudo-epitheliomatous hyperplasia.

nodule that was painless. The lesion was first noted three years prior to his admission. The nodule had ulcerated and spread peripherally toward the lip and chin. The patient stated that the lesion had "drained" a purulent material for the last year.

A biopsy of the lesion with culture confirmed the diagnosis.

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BIBLIOGRAPHY

Ash, J. E., and Spitz, S.: *Pathology of Tropical Diseases*, Philadelphia, W. B. Saunders Company.
Baker, R. D.: "Tissue Changes in Fungus Disease," *Archives of Pathology* 44: 459-466, 1947
Robbins, S. L.: *Textbook of Pathology with Clinical Applications*, Philadelphia, W. B. Saunders Company.
Shafer, W. G., Hine, M. K., Levy, B. M.: *A Textbook of Oral Pathology*, Philadelphia, W. B. Saunders Company.

28th ANNUAL POSTGRADUATE CLINIC OF THE DISTRICT OF COLUMBIA DENTAL SOCIETY

The 28th Annual Postgraduate Clinic of the District of Columbia Dental Society is to be held March 13 to 16, 1960 at the Shoreham Hotel in Washington. A full program of scientific sessions will include limited attendance clinics, panel discussions, projected clinics, table clinics, a 'Lunch and Learn' meeting, motion pictures and scientific exhibits. A reception honoring the President of the American Dental Association and Mrs. Paul Jeserich will head the many social events. Detailed information may be obtained from the District of Columbia Dental Society, 1835 Eye Street, N.W., Washington 6, D.C.

ISRAEL SHULMAN, D.D.S., *General Chairman*

Medical Views on Oral Problems

GRITTY SENSATION IN MOUTH*

TO THE EDITOR:—*A woman, 72 years of age, for the past two years has had a gritty sensation in her mouth, particularly around her lower dentures, which are the plastic type. She has worn dentures since age 45. An allergist has found no sensitivity to such dentures or other substances. She has diminuation of saliva and complains of dryness in the mouth which is relieved for only a few minutes by taking food or liquids. Her general health is good except for moderate hypertension. There is no swelling or tenderness of the parotid glands, and the ducts are not palpable. I will appreciate suggestions on etiology and therapy.*

M.D., North Carolina.

ANSWER.—If these are the original dentures, undoubtedly some resorption of the alveolar ridges has occurred. This would make for improperly fitting dentures, which would cause irritation and inflammation. Also, unless scrupulous cleanliness has been observed in care of the dentures, deposits of salivary calculus may have formed on them, creating the sensation of "grittiness" of which the patient complains. A third point is that at this patient's age there undoubtedly is some atrophy of the salivary glands, with diminution in salivary flow. Decreased salivary flow is also seen as a postmenopausal symptom and in aged people, in general. The treatment should consist of new dentures, if her present ones do not fit properly use of a mild sialagogue, such as pilocarpine hydrochloride, to promote flow of saliva; and scrupulous cleanliness in care of the dentures to avoid the deposition of salivary calculus.

* Questions and Answers, J.A.M.A., Sept. 26, 1959, p. 206/498.

POSSIBLE CAPILLARY FRAGILITY*

TO THE EDITOR:—*In a woman, a slight blow anywhere on the body causes black and blue spots, with no tenderness. They go away in a few days. What can she take to prevent this condition?*

Stanley W. Blanchard, M.D., Boston.

ANSWER.—The question suggests easy bruising and increased capillary fragility, but there is inadequate information to permit any speculation as to its pathogenesis, such as possible hereditary aspects, nutritional history with special regard to ascorbic acid, hypertension, and the particular location of the ecchymoses (body or extremities). It is also important to know whether the patient is experiencing other hemorrhagic phenomena such as epistaxis, gingival bleeding, or undue bleeding after cuts or in association with her menses. Important laboratory tests are needed, including bleeding time, platelet count, and the Rumpel-Leede test for capillary fragility.

Aside from a distinct coagulation defect or thrombocytopenia, a common cause of this type of easy bruising is subclinical scurvy, an entity all too frequently unnoticed in our generally well-nourished population. For one reason or another, many persons place themselves on vitamin C—deficient diets because of the idea that the ascorbic acid—containing foods disagree with them or for some other unrelated reason. This can be readily rectified by the administration of vitamin C. No other therapeutic agent useful in combating increased capillary fragility is known, unless it be the steroids, which are reserved for clear-cut thrombocytopenic purpuric bleeding.

* Questions and Answers, J.A.M.A., Sept. 26, 1959, p. 205/497.

GENERALIZATION FROM PAIN OF VARIOUS TYPES AND DIVERSE ORIGINS*

Evaluation of analgesics and other therapeutic procedures may be determined by means of pathologic or by experimentally induced pain. There is uniformity of response of pathologic pains even of widely differing origin to analgesics but experiments involving experimental pain are characterized by a startling lack of reproducibility.

Clearly, there is an important difference between the two types of pain in terms of response to analgesia. There is reason to believe that all pain consists of two components: 1. the original sensation, and 2. the psychic reaction. The second is dominant in pathologic pain, whereas the first is dominant in experimental pain.

There is some evidence that true anxiety or fear is missing in experimental pain. When anxiety or fear is introduced into the experimental pain situation, the response to morphine is similar to that of pathologic pain. Results from experimental pain produced by tourniquet where pain intensity grows slowly (in contrast to the sudden stab of pain produced by most experimental methods) suggest that experimental pain produced slowly may be useful in appraising analgesics.

* By Henry K. Beecher. Science 130: 267-268, July 31, 1959. Abstracted by Dr. S. Leonard Rosenthal.

FLUORIDE APPLICATION TO TEETH*

TO THE EDITOR:—*Please advise mechanism of action of topical application of fluorides on dental enamel in reducing dental caries. Current literature seems to be contradictory and confusing.*

J. M. Coppoletta, M.D., Oakland, Calif.

ANSWER.—According to the American Dental Association, use of fluoride preparations, topically, is based on the assumption that the fluoride will react chemically with the tooth to produce less soluble enamel. Therefore, a longer period of time or a larger amount of acid would be required to decalcify the tooth (Volker, *Proc. Soc. Exper. Biol. & Med.* 42: 725, 1939). Clinical studies have indicated that in a group of children topical application of fluoride solutions reduces the incidence of new carious lesions by as much as 40% (Syrrist and Karlsen, *Brit. Dent. J.* 97:1, 1954; SundvallHagland, Sodium Fluoride Application to Decidious Dentition: Clinical Study, Stockholm, the Eastman Dental Clinic, 1955).

Excellent articles on dental significance of fluoride are available in published symposiums of the American Association for the Advancement of Science (Fluorine and Dental Health, 1942; Dental Caries and Fluorine, 1946; Fluoridation as Public Health Measure, 1954). Several of these references discuss possible mechanisms of action. It is understood that no specific mechanism can be agreed on at the present time; the finding has been more or less empirical.

* Questions and Answers, J.A.M.A., Sept. 26, 1959, p. 215/375.

APHTHOUS STOMATITIS*

TO THE EDITOR:—*I have under treatment a patient, aged 32, with intractable aphthous stomatitis. I read recently that nystatin has given surprisingly good results. Please advise on the value of that preparation.*

Carlos Lozano De Lamo, M.D.
Cartagena, Spain.

ANSWER.—The causes of aphthous stomatitis are unknown, but apparently secondary invasion by micro-organisms generally found in the mouth plays a role in continuation of the process. Therefore, in some cases, relief can be brought about by the use of appropriate antibiotics. Nystatin powder, or lozenges containing this antibiotic, will prove of value in some cases in combating secondary infection with Candida. In other cases, powdered tetracyclines will prove valuable as mouthwashes (Distelheim and Sulzberger, *J. Invest. Derm.* 13:115, 1949) when secondary invasion by cocci and other micro-organisms sensitive to the tetracyclines has occurred. Recently, a preparation derived from Lactobacillus acidophilus and L. bulgaricus has been reported to give excellent results in relieving the pain and shortening the duration of the ulcers. This is dissolved in milk and used as a mouthwash.

In some cases, recurrences are brought on by exposure to allergens such as nuts, shellfish, pork, and chocolate. In others, trauma to the mucous membrane apparently initiates the attack. In these patients, careful avoidance of the offending type of exposure may result in long periods of freedom. Despite all of these palliative measures, many recurrent cases resist all forms of treatment.

* Questions and Answers, J.A.M.A., Sept. 26, 1959, p. 216/130.

FISH IN LOW-FAT DIETS*

TO THE EDITOR:—*Please give answers to the following questions. In the treatment of coronary artery disease, is the degree of exclusion of fish oil and fats in the diet the same as for animal fats? Would this include only the more fatty fish such as salmon, mackeral, and whitefish? In a patient on a low-fat diet, is the ingestion of small amounts (less than 2 oz. daily) of corn oil or the newer corn-oil margarines of any value? Is the ingestion of these small amounts of corn oil of any harm?*

M.D., New York.

ANSWER.—In the treatment of coronary artery disease with a low-fat, low-cholesterol diet, the incorporation of large amounts of fish of any kind is considered desirable and beneficial. It has been shown in clinical trials that the addition of fish and corn oil decreases serum cholesterol levels below those achieved with a low-fat, low-cholesterol diet alone. The addition of up to 2 oz. of corn oil to such a diet should be allowed only if obesity is not a problem or after weight reduction has been achieved in obese individuals. In using corn-oil margarines, only those which are not hydrogenated can be recommended. While it is advisable to use such a harmless hypocholesteremic regimen, it is only fair to state that this is on the logical assumption that lowering the blood cholesterol level will benefit clinically manifest atherosclerosis—which is as yet unproved.

* Questions and Answers, J.A.M.A., Nov. 7, 1959, p. 265/1441.

PRENATAL CARE AND FLUORINE*

TO THE EDITOR:—*Is fluorine used in the form of sodium fluoride beneficial in the development of baby teeth in utero? Is it indicated for prenatal care?*

M.D., Massachusetts.

ANSWER.—There is little evidence to suggest that low levels of fluorides can pass the placental barrier. In any case, the formation of prenatal enamel is so perfect that addition of fluoride in prenatal care is not indicated.

* Questions and Answers, J.A.M.A., Nov. 7, 1959, p. 265/1441.

Book Reviews

A Synopsis of Pharmacology, with Special Application to Dentistry, by V. C. Sutherland, Ph.D., W. B. Saunders Co., Philadelphia, 267 pages, 1959, $4.00.

The author has prepared a synopsis of pharmacology which will meet the needs of students and practitioners. The practitioner will find this a very useful review of all drug therapy. The material presented is basic to a more detailed study of the therapeutic agents currently used in dentistry and medicine. Also included is a review of the relevent physiology and pathology. The author's approach is operational and descriptive and the details which have been omitted can be found in more comprehensive textbooks, which are listed in the bibliography at the end of each chapter.

Each year hundreds of new drugs appear on the market; modifications of those already in use, or additional new ones. Each group of drugs is subdivided so that the chemistry, physiology, absorption, distribution, toxity, and many other interesting factors are discussed. Treatment, usage and dosage are clearly outlined.

This textbook is a handy reference guide for physicians and dentists. It should be a great aid to students and postgraduates who are preparing for state boards or specialty examinations.

Essentials of Removable Partial Denture Prosthesis, by Oliver C. Applegate, D.D.S., D.D.Sc., F.A.C.D., 2nd edition, W. B. Saunders Co., Philadelphia, 453 illustrations, 10 in color, 364 pages,

In 1895, the year the American Dental Association was activated, the life expectancy of the average individual was 43 years. Today, life expectancy is 70 years of age. With the increased years given to patients by the wonders of medical science, dentistry is now confronted with the problem of having older patients who have lost teeth and who need successful replacements which will last them for many years. Partial denture prosthesis has become more and more important to the general practitioner during the last twenty-five years. He must now provide such a wide variety of services that he cannot be expected to retain all of the details of those services less frequently rendered. Therefore, in order to be capable of partial denture service that will be most satisfactory and that will require the least number of postinsertion adjustments, he frequently will wish to use a source of ready reference. A principal aim of this work is to supply the accumulated information on partial dentures in an orderly and easily located manner.

Part One of this textbook is devoted to a complete coverage of the fundamentals which furnish a broad basis for the various phases of partial denture usage. Its twenty chapters contain an orderly concept of the reasons why one type of prosthesis may be expected to furnish a better health service than another.

Part Two is a continuous step by step description, generously illustrated with photographic displays, of a clinical and laboratory procedure in the construction of a typical mandibular partial denture. A careful revision of this section includes the refinements which have been found advantageous during the six years since the preparation of the first edition. Of particular interest is a report that is also given of what has happened during seven years of service to the prosthesis which was used to illustrate the clinical procedure section in the first edition of Dr. Applegate's book. This textbook should be in the dental library of every general practitioner.

In the Dentist's Office, by G. Archanna Morrison with 6 Contributors, 2nd Edition Illustrated, 280 pages. J. B. Lippincott Co. Philadelphia, $7.50.

This book is listed as a "Guide for Auxiliary Dental Personnel; Hygienist, Assistant, Secretary. To these may well be added "Dentist." To those new and old practitioners of the dental arts who find themselves long on dental technic but short on dental practice management, this textbook offers evocative and provocative guidance. It seems obvious that the most adequate and experienced dental staff will be ineffectual unless the dentist knows what kind of practice management procedures are best suited to his own temperament and practice. Armed with this self knowledge the dentist might profitably dip into the suggestions offered by Miss Morrison to smoothly effectuate every phase of office management and patient relations. Of course it is unthinkable that every suggestion be incorporated into any one practice. The use and function of auxiliary staff members, the words and phrases employed in patient education and letters, the methods of case presentation and financial arrangements with patients, as outlined in this texbook, require the transformation that the individual dentist and individual staff will impose upon them.

The value of the book is in its frank consideration of all aspects of dental office problems. In presenting suggested solutions, it provides a pattern which can be altered to suit. Let the dentist be wary, however, and check the suggested practice procedures with the legal and ethical codes of his own State. For example; "In the event that the hygienst has a new patient, she will use a buzzer or some such signal device to the dentist when she deems it advisable for him to come to her treatment room" may

sound harmless enough, and may very well be proper in the area in which Miss Morrison is acquainted, but it is most certainly not correct or proper in other sections of the country. No one book can outline procedures correct in all States, and the responsibility is upon the dentist to adapt the suggestion found in "In The Dentist's Office" to conform to the regulations set forth in his own vicinity.

The impact of the text is lessened by the injection into what is essentially a manual of practice management, of material on dental anatomy, oral medicine, nutrition, etc., contributed by dentists. These sections, in and of themselves, are excellent, but interposed between the chapters devoted to the care and efficient running of the dental office, break the continuity of thought and scatter unduly the well considered and well presented chapters on the mechanics of the ideal dental practice.

RUTH SCHWARZ

I Have Twenty Teeth—Do You?, Ethel & Leonard Kessler with Jerome B. Ackerman, D.D.S., DoddMead Co., 30 pages, illustrated, 1959, $1.95.

This slight volume is written and illustrated in the simple words and pictures suitable for the very young child. Its purpose is to present the facts of the first dental visit at the three to four year level. In so doing, it follows the pattern of the increasing number of explanatory books whose aim is the presentation to the child of situations in which he will find himself involved at some future time, and by so doing reduce the child's fright and unfamiliarity when he finds himself in similar circumstances. "I Have twenty Teeth—Do You?" is in accord with the best pedodontic thought insofar as the dentist's psychological and dental handling of the new child patient is concerned. It illustrates the ideal approach to the child's introduction to dentistry.

While this is a book for children and their parents, dental practitioners would do well to cast an eye at it so that its prospective dental patient, Paul, and all the other children of whom he is the prototype, may not be cruelly disillusioned by the disparity between the cheerful experience outlined in the book and reality.

RUTH SCHWARZ

Dental Roentgenology, by LeRoy M. Ennis. D.D.S., F.D.S., R.C.S. (Eng) and Harrison M. Berry, Jr., D.D.S., M.Sc. 5th Edition, Lea & Febiger, Philadelphia, 607 pages, 1282 illustrations, 1959, $15.00

Dental practitioners and students can look to this book as one of the most dependable guides available for perfecting their technique in the exposure, development and interpretation of roentgen films. From a history of the discovery of x-rays, through the nature and use of radiation, to actual operation of dental x-ray machines, discussions are clear, concise and definitely sound. Because of its importance in interpretation of roentgenograms, stress is on a full and accurate understanding of pathology.

For the fifth edition Dr. Ennis has been joined by Dr. Harrison M. Berry, who brings a new approach and new experience to this already highly authoritative text. To keep pace with the early Atomic Age and expanding educational horizons in dentistry, the authors have made a rather drastic revision. This includes a new chapter on *radiation,* which contains information essential to undergraduate dental students, progressive practitioners and graduate students in the dental specialties.

"Dental Roentgenology" presents the complete theory of roentgen-rays and technique for its use, without a knowledge of which no roentgenologist, nor his patients, are free from danger. It is a welcome addition to every dental library.

The Textbook of Oral Surgery, edited by Gustav O. Kruger, B.S., A.M., D.D.S., F.A.C.D., C. V. Mosby Co., St. Louis, 489 illustrations, 572 pages, 1959, $12.75.

With the aid of 21 contributors, Dr. Kruger has written a very excellent textbook on oral surgery. This book is designed to fit the needs of the undergraduate senior dental student. General practitioners, interns, residents and oral surgeons will find this textbook very useful since the emphasis has been placed on the basic fundamentals of judgement and technic. It is very unlikely that the student will perform all the surgery that is described in this text, but he should have an understanding of the basic fundamentals of what is to be done and how it should be done. The authors have fulfilled the two purposes in mind when writing this textbook. They have given a concise description of procedures and current thinking in oral surgery and have presented the subject of oral surgery in the sequence in which it is given to the senior dental students in the lecture courses at the Georgetown University School of Dentistry. The contributors have been selected because of their competence in their respective fields and each has devoted his efforts to one particular chapter.

This text is printed on glossy paper and the diagrams are clear. The photographs are exceptionally well done. The publisher, C. V. Mosby Co. is to be complimented on the excellent presentation of this material in book form. The text is recommended for all interested in oral surgery. It will serve as a guide for procedures and as an excellent reference volume.

Pathologic Physiology of Oral Disease, by Richard W. Tieche, D.D.S., M.D., M.S., Orion H. Stuteville, B.S., D.D.S., M.D.S., M.D., and Joseph C. Calandria, M.D., Ph. D., C. V. Mosby Co., St. Louis, 637 illustrations, 480 pages, 1959, $11.50.

The correlation of microscopic pathology and the clinical aspects of oral disease has been the principle theme in the preparation of this fine text for the dental and medical professions. The authors have carefully avoided the presentation of unproved and unsupported theories in relation to the etiology of certain diseases. They have given particular attention to the presentation of the clinical signs and symptoms of disease, especially in those systemic conditions presenting oral symptoms.

Since there are already many standard texts devoted exclusively to dental caries, pulp pathology and the pathology of periodontal disease, only the most important features of these subjects have been included in the present edition.

The general pattern of consideration for the subject matter is the same, in that etiology, clinical signs and symptoms, microscopic appearance and treatment are included for the various conditions. Well defined illustrations have been included so that a clear, concise understanding of the entity under discussion may result. The role of the dentist in the treatment of oral lesions in systemic conditions and malignancies is given careful consideration. Certain precautions in relations to the extraction of teeth, and other surgical procedures in the presence of blood dyscrasias are also given special consideration.

"Pathologic Physiology of Oral Disease" is a welcome and worthwhile addition to dental literature.

Treatment Planning in the Practice of Dentistry, by Henry M. Goldman, D.M.D., and Lester W. Burket, D.D.S., M.D. and associates, C. V. Mosby Co. St. Louis, 95 Figures, 305 pages, 1959, $6.50.

The principles and procedures for treatment planning for the various components of dental practice have been given an exhaustive and detailed evaluation. In order to correlate and describe the fundamentals of treatment planning and to avoid incomplete or haphazard therapy, recognized authorities in every phase of dental practice have contributed their experience.

The authors have indicated that one of the purposes of the text was to state concisely the therapeutic measures that would constitute satisfactory therapy for the treatment of common dental disease; also to describe the signs and symptoms of these processes. The authors are to be commended for admirably fulfilling their objectives. The pocket sized text has included chapters devoted to operative dentistry, endodontics, and periodontal treatment planning. In addition, exodontia, fixed and removable partial denture prosthesis are carefully evaluated, and indications for individual selection are thoroughly explored.

The integration and coordination of selected procedures in the total treatment plan, as well as the discussion of patient-dentist relationship, are some of the interesting and practical discussions.

"Treatment Planning in the Practice of Dentistry" effectively separates the wheat from the chaff and gives the practitioner an unobstructed bird's eye view of the problems and solutions found in every dental office.

Fixed Partial Prosthesis, by Joseph E. Ewing, D.D.S., F.A.C.D., 2nd Edition, Lea & Febiger, Philadelphia, 288 pages, 259 illustrations, 1959, $8.50.

The enlarged second edition of "Fixed Partial Prosthesis" contains full discussions of high speed in dentistry, temporary cements, acrylic splints, investment procedures and new elastic impression materials. Practical applications are stressed. New illustrations of technics include both photographs and drawings and have fully descriptive legends.

Dr. Ewing sets down each step of every procedure in sound, logical sequence. Concise explanatory notes and more than 500 illustrations are used in preference to lengthy text wherever possible. Continuing as an outstanding feature, and one that makes this book a desirable chair-side working reference, is the wealth of guidance presented in conjunction with each procedure. All essential steps in the indirect impression technic are listed; and ways to overcome difficulties which may arise during the insertion of crowns and bridges are detailed. The chapter on Case Design illustrates basic designs which can be used in a combination of clinical conditions.

Surgery of The Oral Cavity and The Technique of Controlled Tooth Division, by Walter W. Cogswell, D.D.S., Williams and Wilkins, Baltimore, 1400 pairs of steroscopic pictures, 1959.

The publication and release of a new type of "book" on oral surgery has brought to the dental profession a new opportunity for the use of visual aids in dentistry. "Surgery of The Oral Cavity and The Technique of Controlled Tooth Division" by Wilton W. Cogswell, D.D.S. is published as 1400 pairs of steroscopic pictures of surgical procedures in the oral cavity. These views are mounted in reels of 7 pairs each and are studied through an electrically illuminated view master focusing stereoscope which is held in the hand. With each slide is a description published in book form, keyed to the three dimensional pictures which the reader is viewing. Dr. Cogswell developed the controlled tooth division method for removal of unerupted and impacted teeth and emphasizes this method in his new book. Since good photographs are difficult to obtain while surgery is being performed within the mouth, Dr. Cogswell reconstructed, in wax, many operations from his own practice. The reproductions are so accurate that the inexperienced would have difficulty in recognizing them as wax reproductions and yet so realistic that the experienced dentist or oral surgeon considers

them as actual clinical cases. The operations covered vary from extractions of teeth using the controlled tooth division method to removal of foreign bodies from the sinuses and removal of tumors.

NORTH CAROLINA SECTION

On October 31, 1959, the North Carolina Section of the American Academy of Dental Medicine met at the University of North Carolina School of Dentistry. Those in attendance were privileged to hear Dr. Richard P. Dobson, Associate Professor of Medicine at the University, present a very comprehensive and informative program on "Diagnosis and Treatment of Oral Lesions." His presentation was illustrated by slides and treatment plans of those diseases which are usually seen by the dentist.

The charter for this 30-member group was received by Dr. Jacob B. Freedland at the Academy's mid-winter meeting in New York last year. Past programs of our group have included case presentations by the members and noted clinicians. A constitutional requirement of the section provides for a bi-annual presentation by each member of the section. Future programs are planned for a demonstration of laboratory procedures in the diagnosis of oral lesions.

The next meeting of the group is scheduled for January 23, 1960. The speaker will be Dr. George G. Stewart, President of the American Academy of Dental Medicine.

BAXTER B. SAPP, *Chairman*

(L. to R. Bottom row) T. G. Nisbet, Norman F. Ross, Sam H. Isenhour, Pearce Roberts, Jr. 2nd row: John R. Wheless, J. B. Freedland, W. S. Perry, Jerome G. Rehm, Paul A. Stroup, Barry G. Miller. Top row: J. M. Zealy, Baxter Sapp, chairman; W. T. McFall, Jr., Grover Hunter, Robert H. Sager, secretary.

Academy Proceedings

MONTREAL SECTION

The last meeting of Montreal Section concluded a very successful year. The meeting was held on June 3, 1959 at the Bellevue Golf and Country Club Chateauguay, Que. Many members played golf during the day. The rest of the members joined them at cocktails and dinner at six o'clock. A merry time was had by all including our women folk. The meeting concluded with reports and election of officers for the session 1959-60. Plans are already under way for a very active year.

The newly elected officers of the Montreal Section for the coming year are:

President ..... Dr. Howard T. Oliver
President-Elect ..... Dr. P. J. Gitnick
Sec'y-Treas. ..... Dr. H. M. Robichaud, 804 Rockland Avenue, Montreal, Que.
Delegate ..... Dr. Louis J. Rosen
Executive ..... Drs. G. Plamondon—R. M. Wiener and R. H. Harvey

The first meeting of the 1959-60 meeting was held at The Alphine Inn, in the Laurentian Mountains, on Sept. 26 and 27. Our ladies joined us. Following our business meeting, we were treated to an illustrated lecture by Dr. F. C. Fraser, Professor of Genetics, McGill University. His illustrated talk on Genetics and its relation to Dentistry was most interesting.

LOUIS J. ROSEN, *National Delegate*

NEW JERSEY SECTION

The New Jersey Section held its' first scientific session of the 1959-1960 year, October 13th at the Hotel Douglas, Newark, New Jersey.

Dr. Carlton Fredericks, associate professor of nutirition at Fairleigh-Dickinson University presented a paper. He point out that nutrition and dental health, the published title, was not adequate, for good nutrition affected the whole beings' welfare and not just a particular area. By use of slides and lecture he demonstrated the effects of good nutritional practices and of the inadequate regimens, on the development of the face, maxilla, teeth and the subsequent psychological reactions resulting therefrom.

We are to publish a new roster of our members in the near future.

Our next scientific session will be a joint meeting with the Essex County Dental Society on February 15, 1960. The speaker, Dr. Albert Schatz, will present as his topic, "The Proteolysis-Chelation Theory of Dental Caries."

REUBEN FELTMAN, *Delegate*

NEW JERSEY SECTION—PERSONALS

Dr. Sam Turkenkopf has been appointed Associate Clinical Professor in Oral Microbiology and Endodontics at Seton Hall College of Medicine and Dentistry. He and his charming wife, Hedy, the former mayor of Cedar Grove, recently flew to Hawaii on the first leg of a 2½ month trip around the world. Their journey took them to Hong

Kong, Thailand, Cambodia, Turkey, Greece, and Italy. Sam lectured at universities in India, Japan, and Israel. . . . Reuben Feltman was appointed a Commissioner of Health for the city of Clifton and is a biographee in the latest issue of Who's Who in the East. To his credit can be added his re-election for the fifth consecutive term as Secretary of the Passaic County Dental Society. Congratulations!! . . . Walter Soltanoff has been appointed to the faculty of Temple University Dental School in the Department of Endodontia. Recently he was elected Secretary of the Philadelphia Endodontia Study Club.

OFFICERS FOR THE YEAR 1959-1960

President	Abram L. Chasens
Pres.-Elect	Samuel A. Ament
Sec'y-Treas.	James B. Dickinson
Nat'l Delegate	Reuben Feltman
Editor	Louis B. Kelsten
Trustees	Edward Bressman, Jack M. Eskow, Walter Soltanoff

Committee Chairmen:

Research, Reuben Feltman; Membership, Jack M. Eskow; Program, Louis B. Kelten; Medico-Dental Relations, Edward Bressman; Constitutional, Harold A. Lentz; Public Relations, Louis B. Kelsten; Nominations, Samuel Turkenkopf.

Correction: It was erroneously mentioned in the last New Jersey Section report that Dr. Carlton Fredericks was affiliated with Fairleigh Dickinson University School of Dentistry. Dr. Fredericks is Associate Professor of Nutrition at Fairleigh Dickinson University.

NEW YORK SECTION

The New York Section of the American Academy of Dental Medicine held its first meeting of the 1959-1960 season last October.

The above picture shows our newly elected officers. From left to right: outgoing president, Stephen Nachbar; president-elect, Henry I. Greene; president, Howard L. Ward; treasurer, Seymour Koteen; and secretary Angelo Cacciatore.

Stephen Nachbar is being presented a plaque by Howard L. Ward for his outstanding service during his term of office. We were happy to learn that Andrew J. Cannistraci has recently been appointed as Associate Clinical Professor of Restorative Dentistry at Seton Hall College of Medicine and Dentistry.

This very well attended meeting was treated to an unusually excellent lecture by Dr. Lewis Schwartz on "Simple Orthodontic Procedures for the General Practitioner."

Plans are being formulated to combine our next scheduled meeting in February with the annual Samuel Charles Miller Memorial lecture. The New York Chapter is proud to contribute its efforts to keep alive the memory of its founder and one of the outstanding leaders in dentistry.

LEONARD M. NEVINS, *Section Editor*

AMERICAN ACADEMY OF DENTAL MEDICINE
HONORARY MEMBERS

1947 Dr. Walter H. Wright*
1948 Dr. E. M. Bluestone
1949 Dr. Joseph F. Volker
1950 Dr. Philip E. Adams
1951 Dr. John A. Kolmer
1951 Dr. Eli D. Goldsmith
1952 Dr. Ernest Charron
1952 Dr. D. Prescott Mowry*
1953 Dr. Harold Keith Box*
1953 Dr. Elmer V. McCollum
1953 Dr. Ernestine B. McCollum
1954 Dr. Gerald D. Timmons
1954 Dr. Lester W. Burket
1954 Dr. Raymond J. Nagle
1955 Dr. Albert L. Midgley
1957 Dr. David Weisberger
1957 Dr. Francis J. McCarthy
1957 Dr. John Oppie McCall
1958 Dr. Adelard Groulx
1958 Dr. Don Gullett
1959 Dr. Alfonso Leng
1959 Dr. Paul Boyle
1959 Dr. Hamilton B. G. Robinson, Jr.

*Deceased

AMERICAN ACADEMY OF DENTAL MEDICINE
FELLOWS

Dr. Samuel C. Miller*
Dr. Sidney Sorrin
Dr. J. Lewis Blass
Dr. George A. Bruns
Dr. S. Leonard Rosenthal
Dr. Louis R. Burman
Dr. Allan N. Arvins
Dr. William M. Greenhut
Dr. Harry Roth
Dr. Harold R. Gelhaar
Dr. Albert LaFerriere
Dr. Alvin H. Berman*
Dr. George F. Clark
Dr. Abraham Goldstein
Dr. George G. Stewart
Dr. George J. Witkin
Dr. Irving Yudkoff
Dr. Marcel Archambault
Dr. Lester Burket

*Deceased

NEW MEMBERS ELECTED AT MID-WINTER MEETING OF AMERICAN ACADEMY OF DENTAL MEDICINE—DECEMBER 6, 1959

Alderman, Marvin M.
Syracuse, N. Y.

Bier, Sanford J.
Brooklyn, N. Y.

Breland, Kenneth R.
Ann Arbor, Mich.

Christl, Richard M.
Detroit, Mich.

Dillman, W. L.
Bloomington, Illinois

Geiger, Morton F.
Syracuse, N. Y.

Goldstein, Milton
New York, N. .Y

Gordon, William A.
Pontiac, Mich.

Grzybinski, Stanley A.
Danvers, Mass.

Helig, Frederick A
Ft. Clayton, C. Z.

Hughs, Major Wilbur Robert, Jr.
Colorado Springs, Colorado

Kogan, Stanley
Baltimore, Md.

Lambo, A. M.
Milwaukee, Wisc.

Malamed, Emanuel H.
Philadelphia, Pa.

Mertz, Curtis A.
Ashtabula, Ohio

Podoloff, Samuel
Schenectady, N. Y.

Ross, Norton M.
Baltimore, Md.

Rubenstein, Maurice
Baltimore, Md.

Schleimer, Max
Lakewood, Calif.

Smallwood, Russell L.
Detroit, Mich.

Turek, Raymond L.
New York, N. Y.

Warren, Richard H.
Jersey City, N. J.

Watson, David Hugh
Milwaukee, Wisc.

Watson, Harry J., Sr.
Milwaukee, Wisc.

American Academy of Dental Medicine

for its Fourteenth Annual Meeting

May 27-28-29-30, 1960 . . . . . Memorial Day Week-End

WARWICK HOTEL, PHILADELPHIA, PA.

takes great pride in presenting

THE MOST UNUSUAL PROFESSIONAL PROGRAM IN ITS HISTORY

based on the theme

"THE SEVEN AGES OF MAN"

By Renowned Scientists and Lecturers

IN ADDITION

*** A LAVISH LADIES' PROGRAM**

An all day trip to the fabulous DuPont Longwood Gardens in Wilmington, Del. The famous Philadelphia Franklin Institute, Art Museum, and Zoo. Touring of historical Philadelphia

* Cocktail Parties and a terrific Dinner Dance and Entertainment, too!

Special Announcement

For those who register before April 1, an unusual gift of real value will be given. In addition, an opportunity for a sensational prize will be available to

EARLY REGISTRANTS ONLY

BRING THE FAMILY

Combine a Philadelphia Holiday with your participation in the most interesting, exciting, and unusual of Academy Meetings

REMEMBER ! ! !

"THE EARLY REGISTRANTS GET THE GIFTS"

Register Now — Don't Delay

SEE YOU IN MAY . . . IN PHILLY . . . PA.

ANNUAL MEETING OF AMERICAN ACADEMY OF DENTAL MEDICINE TO FEATURE "SEVEN AGES OF MAN"

The spotlight of scientific study will focus on "The Seven Ages of Man" at the 14th annual meeting of the American Academy of Dental Medicine, to be held May 27-30, 1960, at the Warwick Hotel, Philadelphia, it has been announced by Drs. Jacoby T. Rothner and Bernard B. Saturen, co-chairmen.

Taking its theme from Shakespeare's play "As You Like It," the program will cover dental and related medical aspects of the seven major stages of man's lifespan.

The scientific sessions will begin with a novel approach to embryology and development of life by Dr. Charles E. Wilde, Professor and Chairman, Department of Oral Histology and Embryology, University of Pennsylvania Dental School. This will be followed by an afternoon panel discussion of the problems of young children and the abnormal child. Panelists will be Dr. Charles Kennedy, Head of Research in Neurology, and Dr. Manuel M. Album, Associate Dentist, both of Children's Hospital, Philadelphia.

At the Sunday luncheon, the new Samuel Charles Miller Memorial Award will be presented for the first time to an outstanding scientist to be identified later. (The late Dr. Miller, one of the Academy's founders, was Professor and Chairman of the Department of Periodontia and Oral Medicine at New York University College of Dentistry. He passed away on February 8, 1958.)

Sunday afternoon's session will open with Dr. Wilton M. Krogman, Professor of Physical Anthropology and Director, Philadelphia Center for Research in Child Growth, University of Pennsylvania, on Growth and Development in Adolescence. He will be followed by Dr. James Skelton, formerly Head, Philosophy and History of Education, Graduate School, Temple University, who will offer a philosophical talk on "What is Man?"

At the Monday session, The Problems of Age from the dental standpoint will be discussed by Dr. S. Leonard Rosenthal, Professor, Department of Oral Diagnosis, Temple University School of Dentistry. Similar problems from the medical standpoint will be covered by Dr. Joseph T. Freeman, Clinical Assistant Professor of Medicine, and Special Lecturer in Geriatrics, Women's Medical College of Pennsylvania.

"The Importance of Death" as the last stage of life will be analyzed by Dr. Edward Lodholz, Emeritus Professor in Physiology, University of Pennsylvania Graduate School of Medicine.

Inquiries concerning the 1960 annual meeting may be addressed to Dr. Jacoby T. Rothner at Medical Arts Building, Philadelphia 2, or Dr. Bernard B. Saturen at 1930 Chestnut St., Philadelphia 3, Pa.

DR. ANNA BOUDIN

Columbia University School of

Dental & Oral Surgery

1884-1959

The Philadelphia Society of Periodontology
in conjunction with
The Philadelphia Chapter of the American Academy of Dental Medicine
present

The Sixth Annual All-Day Medical Meeting

WEDNESDAY, FEBRUARY 17, 1960

WOUND HEALING

Program

1:00 to 5:00

Basis of Wound Healing
Lionel Gold, D.D.S., B.A.
Assistant Professor of Oral Pathology and Associate in Oral Surgery, University of Penna. School of Dentistry.

Physiologic and Pathologic Aspects of Wound Healing
Alexander W. Ulin, M.D.
Associate Professor of Surgery, Hahnemann Medical School; Chairman, Dept. of Surgery, Albert Einstein Medical Center (Southern)

Soft Tissue Wound Healing
George Krikos, D.D.S., Ph.D.
Assistant Professor of Oral Histology and Pathology, University of Pennsylvania, School of Dentistry.

6:30 DINNER — Warwick Hotel

8:00 Healing Following Periodontal Surgery
Sigmund Stahl, D.D.S., M.S.
Assistant Professor, Dept. of Periodontia and Oral Medicine, New York University, College of Dentistry.

Discussion and Summary

The subject of "Wound Healing" is a very timely and interesting phase of the general periodontal problem: timely, in the sense that the approach to treatment today involves many surgical techniques; interesting in the complexity of the periodontal wound, with factors of infection, trauma, necessary function, and protection, etc., being involved. Add to this the fact that soft and hard tissue make up our wound!

Our approach to the general problem is from the basic level, the research phase, the medical man's viewpoint, and finally the specific periodontal aspect. The end result of the discussions of the day must be inspiring, interesting, scientifically rewarding, and practical too.

The meeting will be held at Temple University Dental School, 3223 N. Broad Street, and will start at 1:00 P.M. Dinner will be served at the Warwick Hotel, 17th and Locust Streets, promptly at 6:30 P.M. After dinner, the evening sessions will continue at the hotel, at 8:00.

Fee: (including dinner)
Members: $10.00 Non-members: $25.00

Apply to
Dr. Emanuel Malamed, Sec'y., 1147 Magee Ave., Phila. 11, Pa.
Dr. Bernard B. Saturen, *Chairman of Program*

American Academy of Dental Medicine

EDUCATION COMMITTEE — VOLUNTEER CLINICIANS

I am willing to make a presentation of a Lecture ☐ Clinic ☐ entitled:

.....

.....

.....

before various sections of the American Academy of Dental Medicine, gratis except for travel costs.

Name.....

Address.....

City.....

Institution association.....

Position.....

Please fill in and send to Education Committee, Dr. Bernard B. Saturen, Chairman, 1930 Chestnut Street, Philadelphia 3, Penna.

MASSACHUSETTS SECTION

The Massachusetts Section of American Academy of Dental Medicine held its Fall meeting at the Hotel Kenmore in Boston on Sunday, Oct. 25, 1959.

Our guest speaker was David Weisberger, D.M.D., M.D., Professor of Dental Medicine at the Harvard School of Dental Medicine, Oral Surgeon and Chief of Dental Service at the Massachusetts General Hospital. His subject was "Salivary Gland Disease" and was delivered in a most interesting and instructive manner. This was an all day meeting with the starting lecture at 10:30 A.M.—lunch at 12:30 P.M. and continuation of the lecture and question period until 4:00 P.M.

CLAYMAN C. LEVY, *Publicity Chairman*

Announcements

POSTGRADUATE TRAINING IN PERIODONTIA AND ORAL MEDICINE NEW YORK UNIVERSITY COLLEGE OF DENTISTRY

The following postgraduate courses in Periodontia and Oral Medicine will be offered at the New York University College of Dentistry and will be given by Dr. Sidney Sorrin and associates:

No. 124.02. REFRESHER COURSE IN PERIODONTIA AND ORAL MEDICINE

Ten sessions, Wednesday, 4:00 to 6:00 P.M. February 3, 1960 to April 6, 1960.
Tutition and books. $156.00. Instruments approximately $55.00.

Theoretical and practical application of periodontal diagnosis and techniques to general dentistry. Four lecture and six clinical demonstration sessions. Equilibration of occulsion is performed by the student on casts. Patient demonstrations include equilibration of occulsion, conservative and radical therapy, home care, etc.

No. 123.02. PERIODONTIA AND ORAL MEDICINE IN THE SPANISH LANGUAGE

Four weeks, Monday through Friday, 9:00 A.M. to 4:00 P.M.
March 7 to April 1, 1960 inclusive. Tuition including books and instruments approximately $385.00.

Theoretical and practical application of Periodontia and Oral Medicine is fully explained and demonstrated. Equilibration of occlusion is performed by the student on casts. Lectures and clinical demonstrations of diagnosis and treatment planning, conservative and radical techniques, equilibration of occlusion, home care, etc. The entire course is conducted in the Spanish language.

COMPREHENSIVE PREPARATION IN PERIODONTIA AND ORAL MEDICINE

No. 121.11 One academic year, full time. September 14, 1959 to May 27, 1960.
Tuition $1,010.00. Instruments and books approximately $135.00.

No. 120.11 and 121.11. Two academic years, full time. September 14, 1959 to May 26, 1961.
Tuition $2,020.00 (two years). Instruments and books approximately $231.00.

No. 121.21. Two academic years, half time. September 14, 1959 to May 26, 1961. (Two and one half days weekly.)
Tuition $1,010.00 (two years). Instruments and books approximately $135.00.

No. 120.21 & 121.21 Four academic years, half time. September 14, 1959, to May 1963. (Two and one half days weekly.)
Tuition $2,020.00 (four years). Instruments and books approximately $231.00.

These courses are designed for comprehensive preparation in Periodontia and Oral Medicine and are of particular significance for certification towards specialization. All didactic and clinical phases are covered with the objective of developing expert proficiency.

No. 222. GRADUATE COURSE IN PERIODONTIA AND ORAL MEDICINE.

Two academic years, full or half time, beginning Sept. 14, 1959. Tuition $2,020.00. (two years). Instruments and books approximately $275.00.

This program leads to the degree of Master of Science (in Dentistry). The objectives are to teach superior proficiency in Periodontia and Oral Medicine based on adequate background in the basic sciences.

For further information, write to the Secretary, Postgraduate Studies, New York University College of Dentistry, 421 First Ave., New York, N. Y.

UNIVERSITY OF MINNESOTA

The University of Minnesota School of Dentistry is most pleased to announce the 3rd Annual Course in Advanced Oral Pathology for 1960. The course, held from Thursday, 21 April through Tuesday, 26 April 1960, devotes about half time to examination of approximately 200 slides.

The course will be limited to 20 participants. Tuition will be $100.00. Interested individuals will please contact: Dr. Robert J. Gorlin, Professor and Chairman, Division of Oral Pathology, School of Dentistry, University of Minnesota, Minneapolis 14, Minnesota.

ALBERT EINSTEIN COLLEGE OF MEDICINE, DEPARTMENT OF DENTISTRY, PERIODONTICS SECTION

The Albert Einstein College of Medicine, Department of Dentistry, Periodontics Section, will sponsor a ten session postgraduate course in Periodontia every Wednesday, 9:00 A.M.-4:00 P.M. from March 2nd through May 4th, 1960. This course is designed primarily to integrate periodontia into the general dental practice. The lecture sessions will be held at the Albert Einstein College of Medicine, and the clinical demonstrations at the Dental Clinic, Jacobi Hospital.

The course will embrace the theoretical and practical application of the causative factors, diagnosis, prognosis and treatment of periodontal disease. Clinical demonstrations including occlusal adjustment and simplified surgical procedures will be given by qualified periodontists.

Tuition $175. Class limited

For further information and application please write to the Albert Einstein College of Medicine, Department of Dentistry, Director of Postgraduate Studies, Eastchester Road and Morris Park Avenue, The Bronx 61, New York.

TUFTS UNIVERSITY SCHOOL OF DENTAL MEDICINE

Tufts University School of Dental Medicine announces the following Postgraduate Refresher Course.

DPG. 201—ORAL PATHOLOGY FOR THE ORAL SURGEON
(Surgical Pathology of the Oral Cavity)
Each Thursday afternoon for Nine Weeks from February 4 through March 31, 1960, 1 p.m. to 4 p.m.
Tuition $150.00—Class Limited
Dr. Irving Glickman, Professor of Oral Pathology & Periodontology (Chairman of the Department)
Dr. Gerald Shklar, Associate Professor of Oral Pathology & Periodontology
Dr. Irving Meyer, Visiting Instructor in Oral Pathology

DPG. 401—ORTHODONTIC PRINCIPLES OF INTEREST TO THE GENERAL PRACTITIONER
Each Wednesday for Eight Weeks from February 10 to March 30, 1960
Tuition $150.00—Class Limited to 10
Dr. Herbert I. Margolis and Staff

DPG. 702—A DEMONSTRATION COURSE IN FULL UPPER AND LOWER DENTURES
Thursday, Friday and Saturday
February 11, 12, 13, 1960
Dr. Victor H. Sears, Vallejo, California

DPG. 708—ORAL REHABILITATION
Thursday, Friday, Saturday
February 25, 26, 27, 1960
Dr. Jerome M. Schweitzer, Clinical Professor Denture Prosthetics
New York University College of Dentistry

DPG. 302—MINOR ORAL SURGERY
Each Wednesday for the Six Weeks from March 2 to April 6, 1960
Tuition $150.00—Class Limited
Dr. Richard Taylor and Staff

DPG. 602—CLINICAL ADJUSTMENT OF THE OCCLUSION
Monday, Tuesday and Wednesday
March 14, 15, 16, 1960
Dr. Bernard Jankelson, Clinical Associate and Lecturer, University of Washington School of Dentistry

DPG. 705—TOOTH AND DENTURE BASE ESTHETICS
Three Days—March 21, 22, 23, 1960
Tuition $100.00—Class Limited
Dr. A. Albert Yurkstas and Dr. Philip Williams

DPG. 703—FULL DENTURE IMPLANTS
Monday through Friday
March 28 through April 1, 1960
Tuition $200.00
Dr. Norman I. Goldberg, Guest Postgraduate Lecturer
Dr. Aaron Gershkoff, Guest Postgraduate Lecturer

DPG. 605—A SPECIAL PARTICIPATION COURSE IN PERIODONTOLOGY
Monday through Friday for One Week from April 25 through April 29, 1960
Tuition $150.00—Class Limited
Dr. Irving Glickman and Staff

DPG. 709—A SPECIAL POSTGRADUATE REFRESHER COURSE IN PROSTHETICS FOR THE PERIODONTAL PATIENT
Four Days, Monday through Thursday, 9-6 p.m.
May 9-12, 1960
Tuition $150.00

STAFF:
Dr. Irving Glickman, Professor and Chairman of the Department of Oral Pathology and Periodontology
Dr. A. Albert Yurkstas, Associate Professor of Prosthetic Dentistry
Dr. Frank A. Eich, Assistant Professor of Prosthetic Dentistry (Crown and Bridge)
Dr. Benjamin Patur, Assistant Clinical Professor of Periodontology
Dr. R. Sheldon Stein, Lecturer in Postgraduate Prosthetics

DPG. 706—FULL DENTURE PROSTHESIS

One Week—June 6 through June 10, 1960
Tuition $150.00—Class Limited
Dr. Irving R. Hardy and Dr. A. Albert Yurkstas

For further information and application write to: Director of Graduate and Postgraduate Studies, 136 Harrison Avenue, Boston, Massachusetts.

REGULAR CORPS EXAMINATION FOR DENTAL OFFICERS UNITED STATES PUBLIC HEALTH SERVICE COMMISSIONED CORPS

A competitive examination for appointment of dentists as officers in the Regular Corps of the United States Public Health Service Commissioned Corps will be held throughout the United States on March 1, 2, 3, and 4, 1960.

Appointments provide opportunities for career service in clinical dentistry, research, and public health. They will be made in the PHS officer grades of Assistant Dental Surgeon and Senior Assistant Dental Surgeon, equivalent to Navy ranks of Lieutenant (j.g.) and Lieutenant, respectively.

Entrance pay for Assistant Dental Surgeon with dependents is $7,345 per year; for Senior Assistant with dependents $7,986. *Promotions* are made at rapid intervals.

Active duty as a Public Health Service officer fulfills the Selective Service obligation for military duty.

Entrance examinations will include an interview, physical examination, practical examination, and comprehensive objective examinations in the appropriate professional fields.

Application forms may be obtained by writing to the Surgeon General, United States Public Health Service (P), Washington 25, D. C. Completed application forms must be received *no later than January 22, 1960.*

DOCTOR'S ORCHESTRA

Physicians, dentists, and members of allied professions are invited to become members of two doctors' orchestras in New York City. Non-medical musicians may also join.

The Doctor's Orchestral Society of New York rehearses Thursday evenings in the auditorium of the Stuyvesant High School, 15th Street and First Avenue, New York City, at 8:30 P.M.

The Brooklyn Doctors' Symphony meets Wednesday evenings in the auditorium of the Brooklyn High School of Home Making at 901 Classon Avenue, corner of Washington Avenue, Brooklyn at the same time.

For further details contact: Dr. Benjamin A. Rosenberg, 909 President Street, Brooklyn, New York.

AMERICAN SOCIETY OF ORAL SURGEONS

The Forty-Second Annual Meeting of the American Society of Oral Surgeons will be held October 12-15, 1960 in Phoenix. Headquarters hotel will be the Westward Ho.

Exhibits by any organization supplying equipment, materials or services used by the oral surgeon and meeting official standards of the American Dental Association will be invited, and an adequate exhibit space has been assigned at the Westward Ho Hotel. A complete exhibits prospectus will be mailed on request of any organization.

Officers elected to serve 1959-60 (through the Phoenix Meeting) are: Dr. Fred A. Henny, President, Henry Ford Hospital, Detroit; Dr. Frank H. O'Halloran, President Elect, Evansville, Indiana; Dr. Lyall O. Bishop, Vice President, Walnut Creek, California; and Dr. Edward C. Thompson, Secretary-Treasurer, Urbana, Illinois.

TEMPLE UNIVERSITY SCHOOL OF DENTISTRY GRADUATE AND POST-GRADUATE DIVISION 1960 COURSES

Practice Administration

Jay H. Eshleman, D.S.S., D.Sc., Lecturer, Practice Administration, Temple University.
February 27, 1960. Tuition: $25.00

Clinical Diagnosis and Oral Medicine

Lester W. Burket, D.D.S., M.D., D.Sc., F.A.C.D., F.A.D.M. Professor of Oral Medicine and Dean, School of Dentistry, University of Pennsylvania.
S. Leonard Rosenthal, D.D.S., F.A.C.D., F.A.D.M., Professor of Oral Diagnosis and Research Coordinator, Temple University School of Dentistry.
February 29 to March 4, 1960. Tuition: $150.00

Electronic Electrosurgery

Maurice J. Oringer, D.D.S., Postgraduate Instructor in Anesthesia Oral Surgery, and Electronic Electrosurgery, Postgraduate School of First District Dental Society, New York.
March 18, 19, 1960. Tuition: $60.00

Anatomy—Head and Neck Dissection

Richard M. Snodgrasse, PhB., M.A., Ph.D. Fifteen Wednesdays from 1 to 5 P.M. Professor of Anatomy, Temple University School of Dentistry.
February 3 to June 8, 1960 Tutition: $300.00

Advanced Fixed Prosthesis

George Straussberg, D.D.S., Clinician in Restorative Dentistry, First District of New York, Essex County Dental Society, and Temple University.
February 8, 9, 10, 11, 12, 13, 1960. Tution $200.00

Present Day Periodontal Practice

Jacoby T. Rothner, D.D.S., F.A.C.D., Professor of Periodontics, Temple University
and Associates.

One day a week for 10 weeks, starting Tuesday, February 16, through
Tuesday, April 26, 1960. Tuition: $250.00

Full Denture Prosthesis

Bernard Jankelson, D.M.D., Lecturer and Clinical Associate, University of Washington, Member Postgraduate Faculty, University of Southern California.
and Associates.

March 21, 22, 23, 24, 25, 26, 1960 Tuition: $200.00

UNIVERSITY OF PITTSBURGH SCHOOL OF DENTISTRY

Applications are now being accepted by the Graduate Division of the University of Pittsburgh School of Dentistry for graduate study in the fields of Anesthesiology, Oral Surgery, Orthodontics, and Prosthodontics, leading to the Master of Science degree. Selection of students for the Fall Session of 1960 will be made in April, 1960.

A non-degree, full-time twelve month course in General Anesthesia is also available for qualified dental graduates.

For further information and application forms write to: Director of Graduate Education, University of Pittsburgh, School of Dentistry, Pittsburgh 13, Pa.

UNIVERSITY OF ALABAMA SCHOOL OF DENTISTRY

The University of Alabama School of Dentistry will present the following refresher courses during the months of February and March:

February 6, 7, 1960: Management of Advanced Periodontal Disease, John F. Prichard, D.D.S.

February 13, 14, 15, 1960: Removable Orthodontic Appliance Construction, Samuel D Gore, D.D.S. (limited to practicing orthodontists)

February 27, 28, 29, 1960: Practical Exodontia Daniel J. Holland, D.M.D.

March 4, 5, 6, 1960: Complete Denture Prosthesis William L. McCracken, D.D.S., M.S.

Further information regarding these courses may be obtained from the Director, Refresher Course Program, University of Alabama School of Dentistry, 1919 Seventh Avenue South, Birmingham 3, Alabama.

THE AMERICAN INSTITUTE OF ORAL BIOLOGY CASE HISTORY SERVICE

The Institute continues to offer CASE HISTORIES from the broad field of Oral Biology for the year 1959-60. These will include original 35 mm. Kodachrome slides of pathologic conditions of the oral cavity and jaws, accompanied by pertinent laboratory findings, medical background, roentgenograms, photomicrographs, diagnostic criteria and whatever else may be indicated in each individual case, with a "general discussion" of the disease. A loose leaf binder and matching Kodachrome slide box will be furnished. The fiscal year of the Institute runs from October 1 to September 30.

This monthly service was initiated in 1952 and has met with outstanding success. During these seven years it has provided a total of 1011 one-year subscriptions and the histories were accompanied by 148 Kodachrome slides.

The subscriber to this CASE HISTORY SERVICE is entitled to full membership in THE AMERICAN INSTITUTE OF ORAL BIOLOGY. Members of the A.D.A. or A.M.A., or their foreign equivalent, are eligible to apply. Due to the great demand for this Service, it is recommended to subscribe at an early date for immediate delivery. An index of the various diseases covered during this period will be mailed upon request. Complete series for the years 1954-58 are still available; unfortunately the series for 1952 and 1953 are out of print.

For further information, address all communications to the secretary, Mrs. C. Novembri, 2240 Channing Way, Berkeley 4, California.

GRADUATE SCHOOL OF EDUCATION YESHIVA UNIVERSITY

The Graduate School of Education of Yeshiva University has developed a course of study geared specifically for dental practitioners. It is designed to give a broad scope and basic insight into the behavioral problem of patients.

Special evening classes in psychology, emotional disturbances and areas of handicaps will lead to a Master of Science degree in Special Education. The curriculum will provide the dentist with the knowledge to cope with patients who present personality and health problems.

Jerry J. Adelson, D.D.S., ED.D., Adjunct Professor, Department of Special Education and Guidance, will serve as special advisor.

For further information write to Dr. Adelson at: Department of Special Education and Guidance, Yeshiva University Graduate School, 110 West 57th Street, New York 19, New York.

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